

INFORMATION SERVICES INDUSTRY

ANNUAL CLIENT PRESENTATION

1983

INPUT

About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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Tel. (703) 847-6870
Fax (703) 847-6872

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75003 Paris, France
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Saida Building
4-6, Kanda Sakuma-cho
Chiyoda-ku, Tokyo 101, Japan
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**Information Services Industry Program (ISIP)
Annual Client Presentation
1983**

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Copy 1

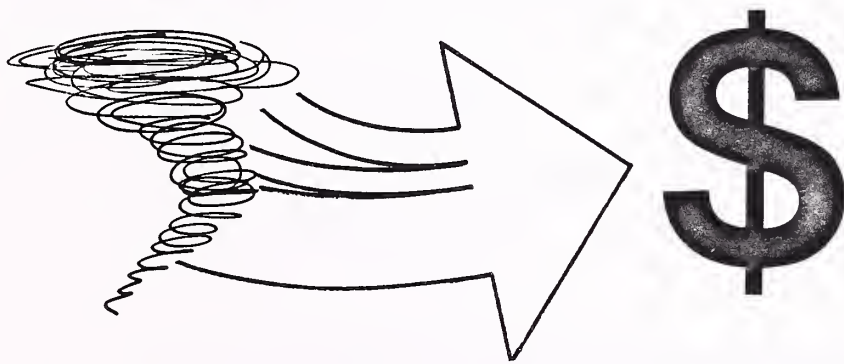
TITLE

DATE
LOANED

BORROWER'S NAME

INPUT Presents . . .

PROFITING FROM THE WHIRLWIND OF CHANGE



INPUT

AGENDA

- **Introduction**
- **Executive Summary**
- **Competitive Overview**
- **Industry Trends**
- **End-user Computing**
- **Market Outlook**
- **Conclusions and Recommendations**

INPUT



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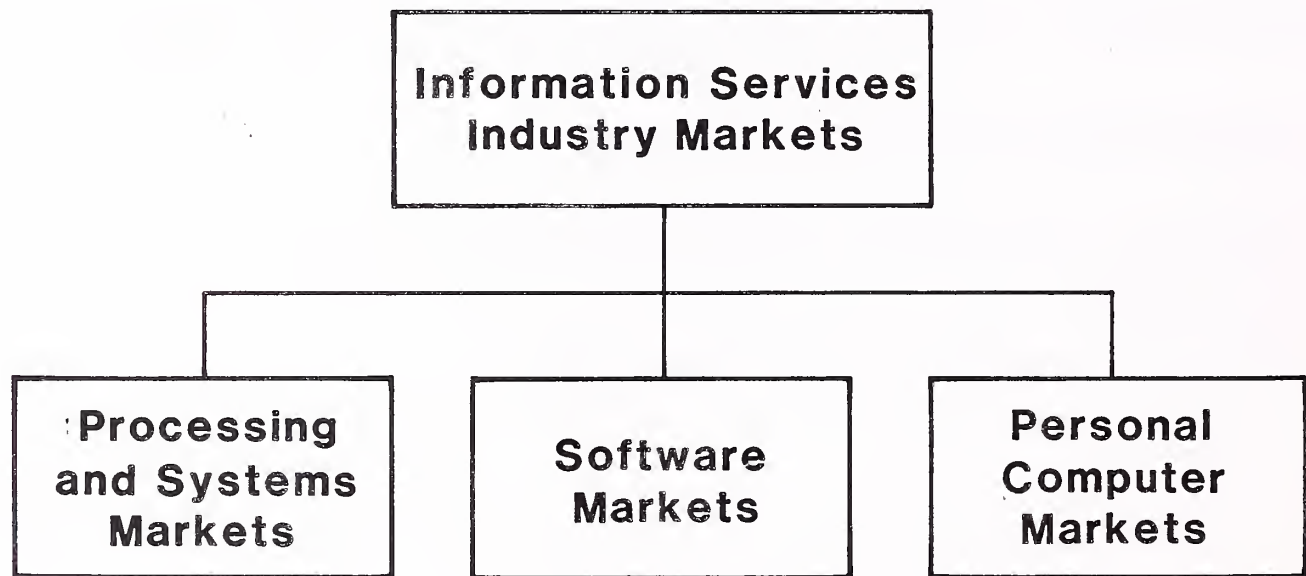
<https://archive.org/details/12787MCP3xx83InformationS>

INPUT PROGRAMS

- **Information Systems Program (ISP)**
- **Information Services Industry Program (ISIP)**
- **Company Analysis and Monitoring Program (CAMP)**
- **Field Services Program (FSP)**
- **Federal Information Systems and Services Program**
- **Custom and Multi-client Research**

INPUT

1984 MARKET ANALYSIS AND PLANNING SERVICE (MAPS)



INPUT

1984 MARKET ANALYSIS AND PLANNING SERVICE (MAPS)

Information Services Industry Markets

- **Inquiry Service and Support**
- **Joint Client Conference**
- **Executive Bulletins, Seminars**
- **Acquisition Strategy Report**
- **Annual Industry Report Series**
- **Market Alert: Banking/Finance**
- **Market Alert: Discrete Manufacturing**

INPUT

1984 MARKET ANALYSIS AND PLANNING SERVICE (MAPS)

Software Markets

- **Annual Report - 1984-1989**
- **Annual Presentation**
- **Five Market Reports**
 - **IBM Software Strategy**
 - **Software Productivity**
 - **Integrated DBMS - Applications**
 - **Fourth Generation Languages**
 - **Professional Services**

INPUT

1984 MARKET ANALYSIS AND PLANNING SERVICE (MAPS)

Processing and Systems Markets

- **Annual Report - 1984-1989**
- **Annual Presentation**
- **Five Market Reports**
 - **On-line Data Bases**
 - **Telecommunications**
 - **PC-to-mainframe**
 - **Successful RCS Strategies**
 - **Small Organizations**

INPUT

1984 MARKET ANALYSIS AND PLANNING SERVICE (MAPS)

Personal Computer Markets

- **Annual Report - 1984-1989**
- **Annual Presentation**
- **Five Market Reports**
 - **PC-to-mainframe**
 - **Applications Transfer**
 - **PC Software Support**
 - **Pricing and Distribution**
 - **Home Computers**

INPUT

TODAY'S OBJECTIVE

- **Describe Major Market Directions and Changes for 1983-1988**
- **Suggest High-potential Strategies and Actions**

INPUT

THEME

**Market's rapidly changing character
requires a higher degree of business
strategy integration.**

INPUT

THEME

This integration combines previously distinct . . .

- **Markets**
- **Products**
- **Distribution Channels**
- **Delivery Modes**

INPUT

KEY ISSUES

- **Integrating PCs with Processing Services**
- **Best Strategies for Processing Services Vendors**
- **Response to Potential Software Price Erosion**
- **Outlook for Data-based Services**
- **Competing Against Better Financed Vendors**

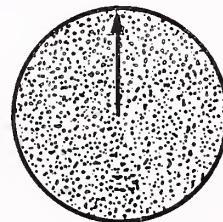
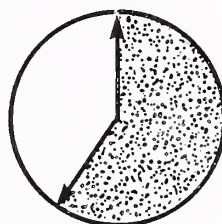
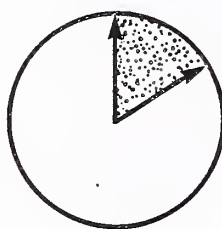
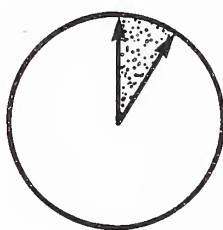
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EXECUTIVE SUMMARY

- **Growth by Delivery Mode**
 - **1983 Versus 1982**
 - **Five-year Forecasts**
- **Recap of Key Issues**

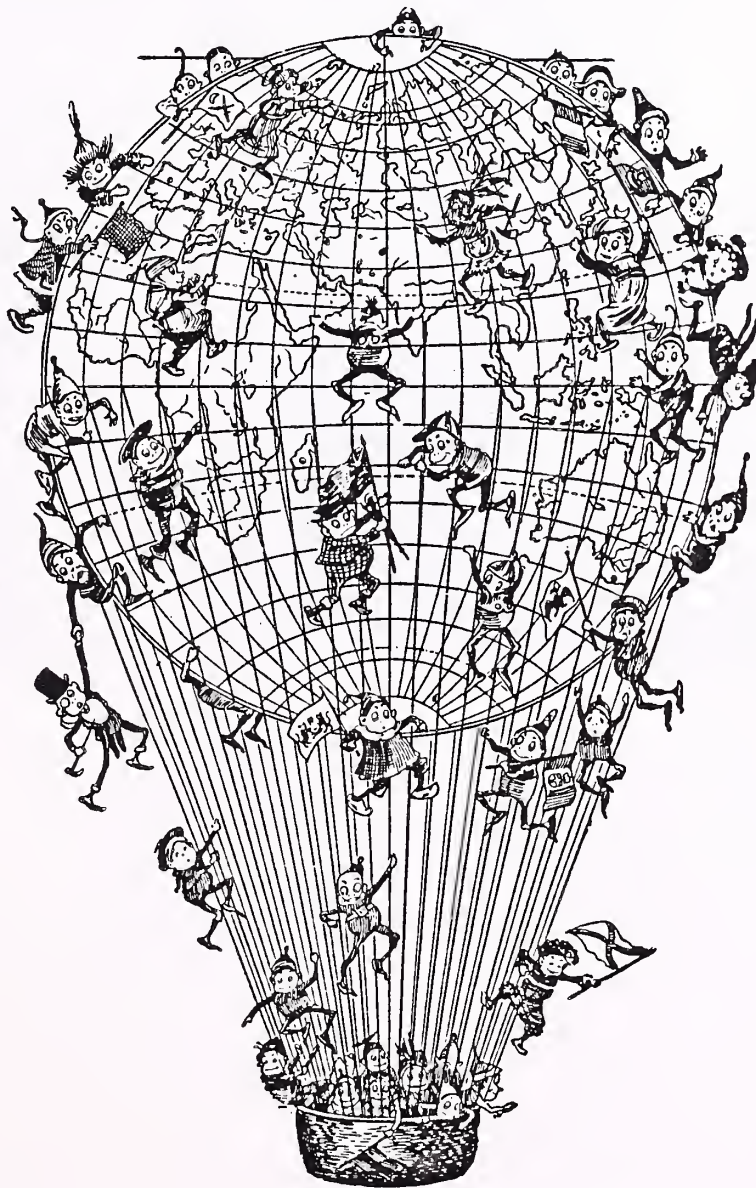
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THE INFORMATION SERVICES INDUSTRY IN 60 SECONDS



INPUT

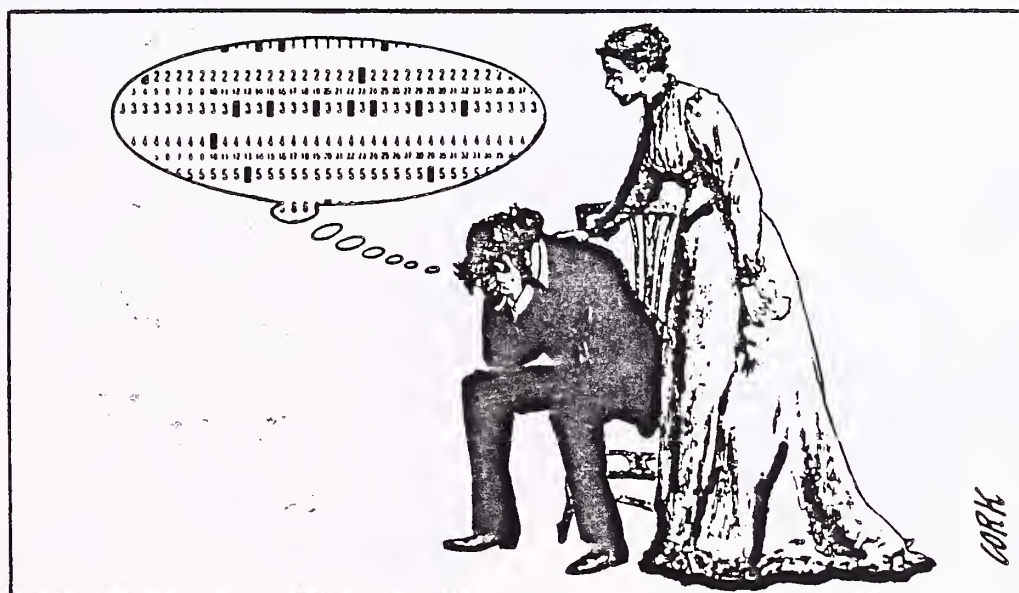
OPPORTUNITIES ABOUND



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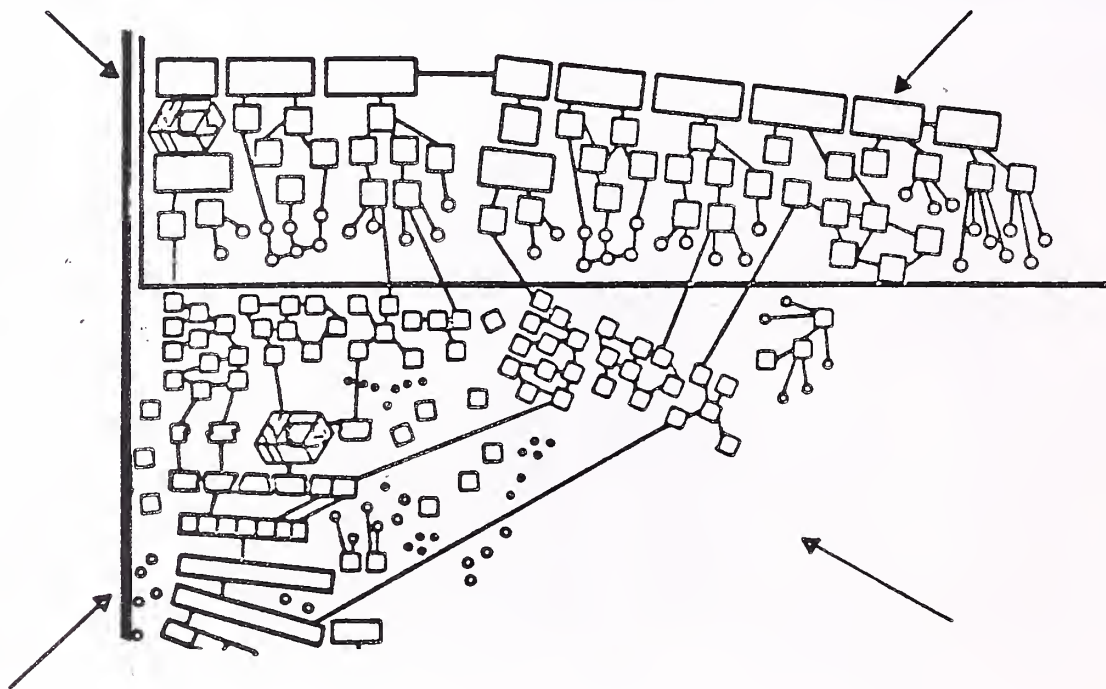
- 16 -

THE PAST IS GONE FOREVER



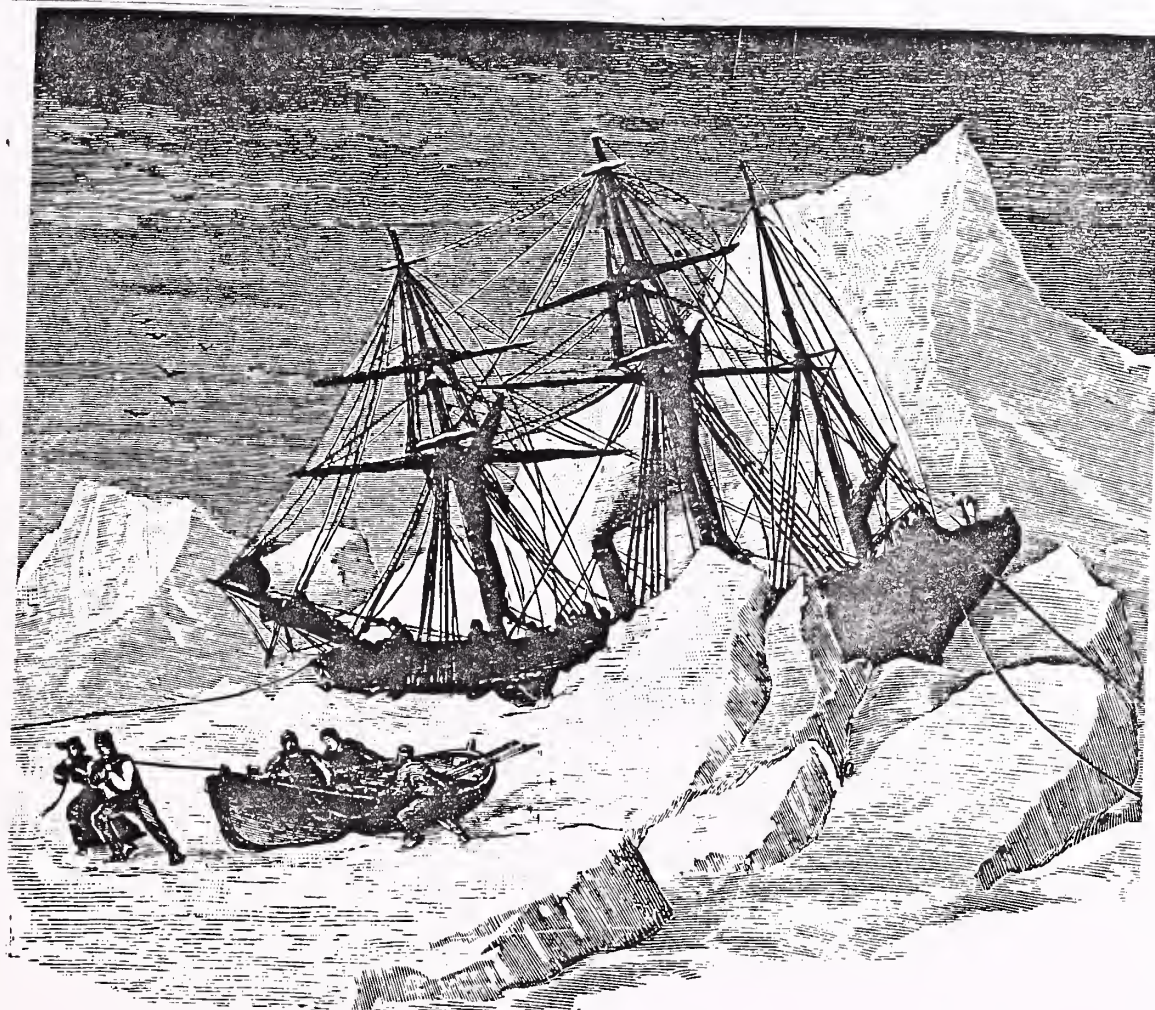
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EVERYTHING IS CHANGING



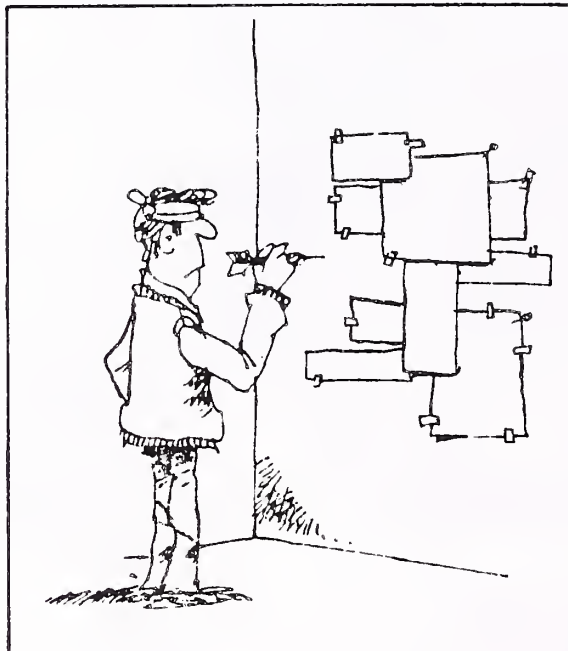
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FLEXIBILITY IS CRUCIAL



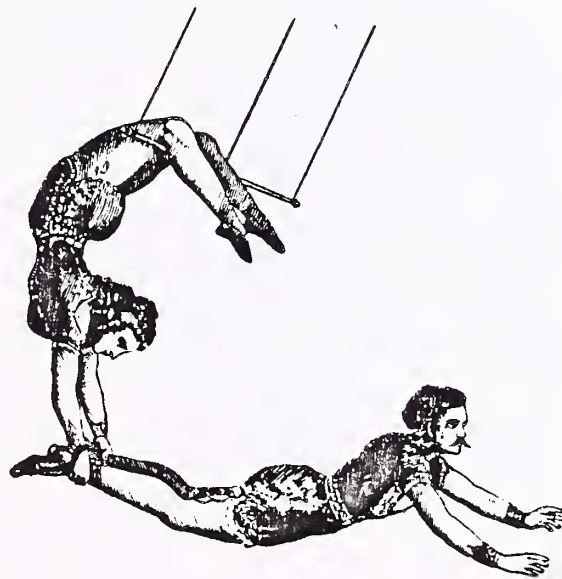
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SELECT OPPORTUNITIES CAREFULLY



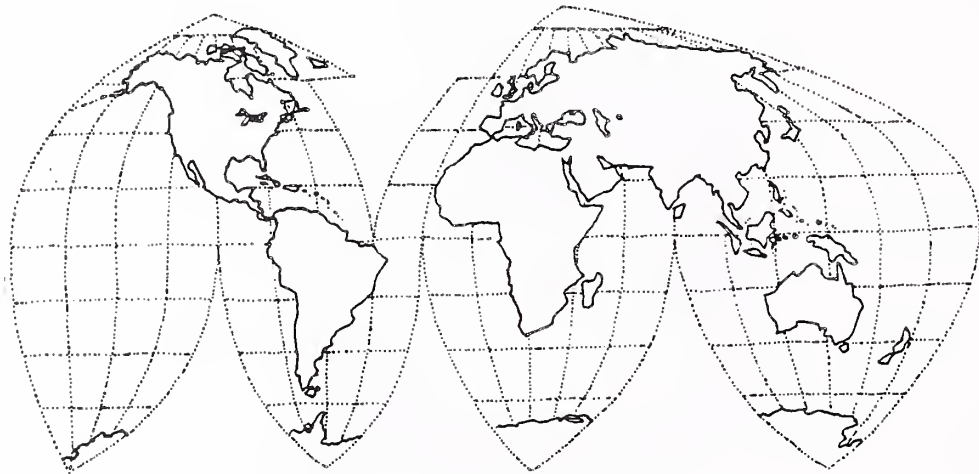
INPUT

SEEK DEPENDABLE PARTNERS



INPUT

THERE'S A WORLD OF OPPORTUNITY



INPUT

FORECASTS



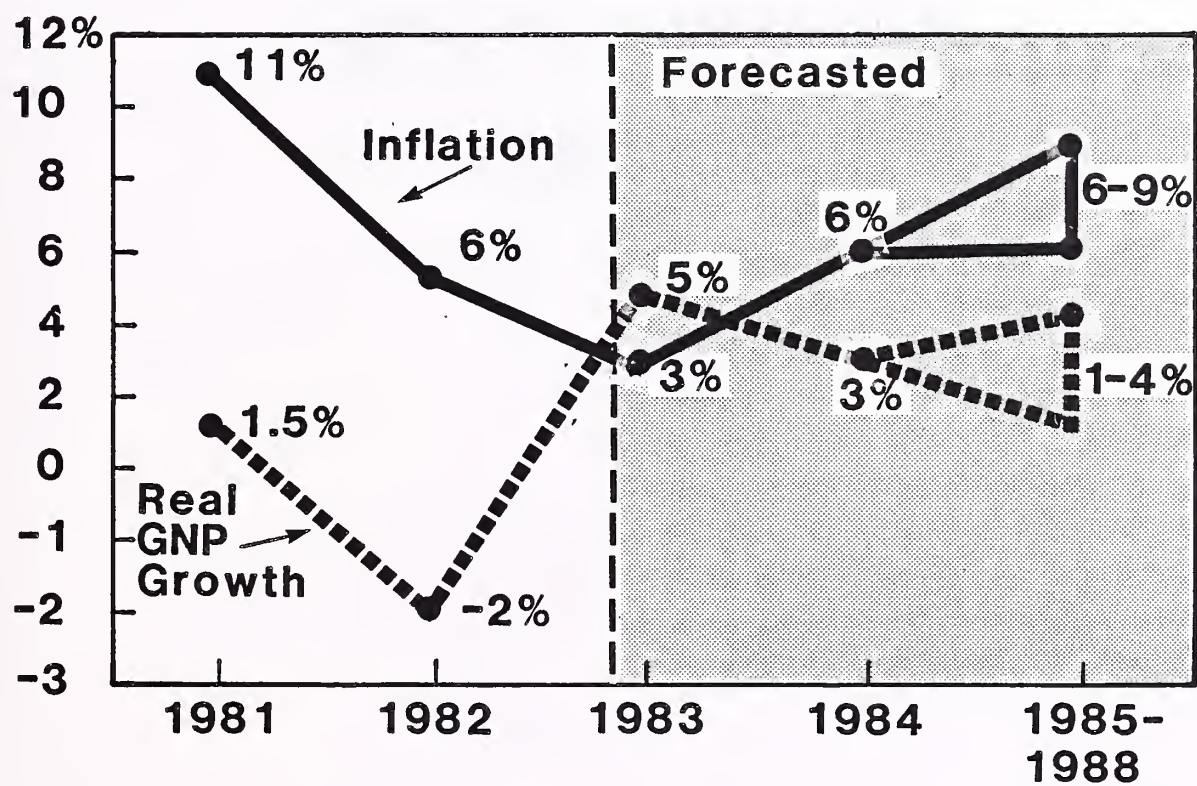
INPUT

FORECAST PARAMETERS

- **U.S. Noncaptive User Expenditures**
- **Calendar Year**
- **Current Dollars**
- **AAGR = Average Annual Growth Rate**

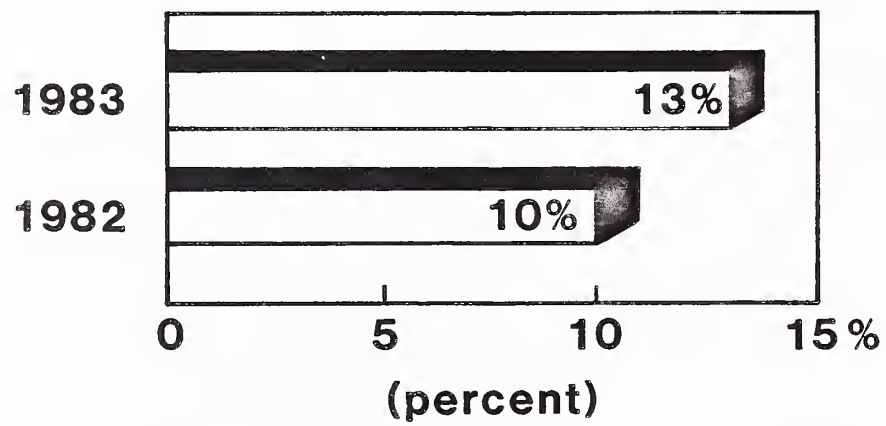
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ECONOMY TRENDS



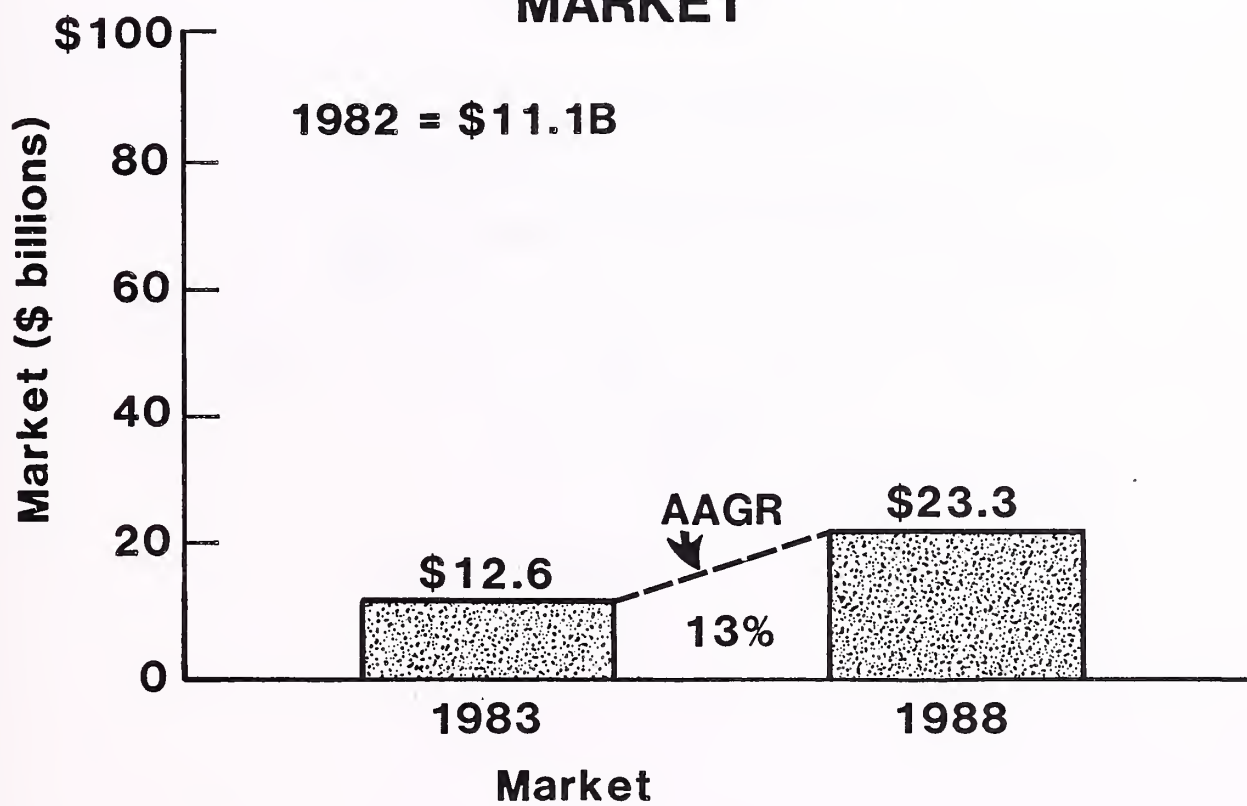
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PROCESSING SERVICES ANNUAL MARKET GROWTH



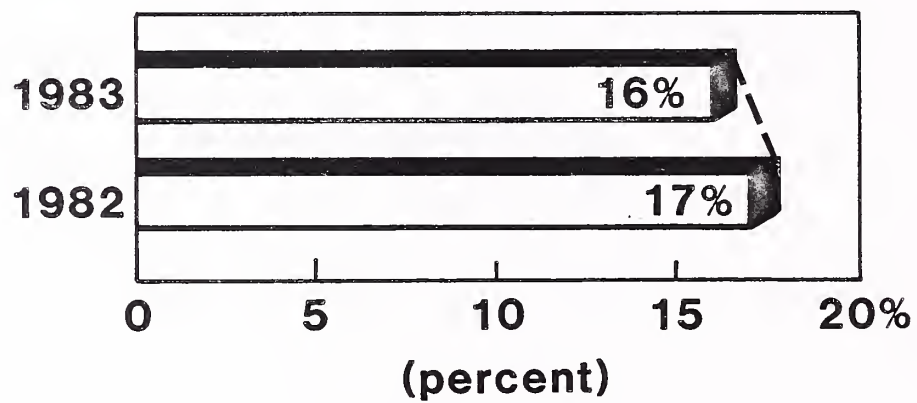
INPUT

PROCESSING SERVICES MARKET



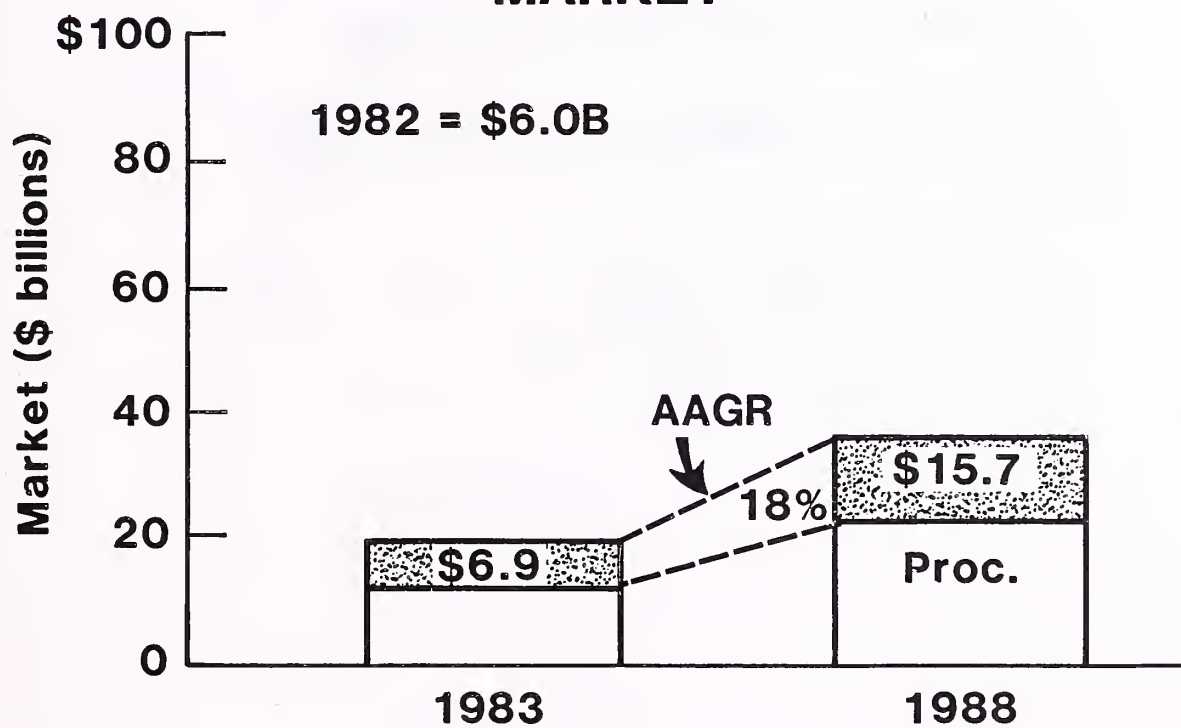
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PROFESSIONAL SERVICES ANNUAL MARKET GROWTH



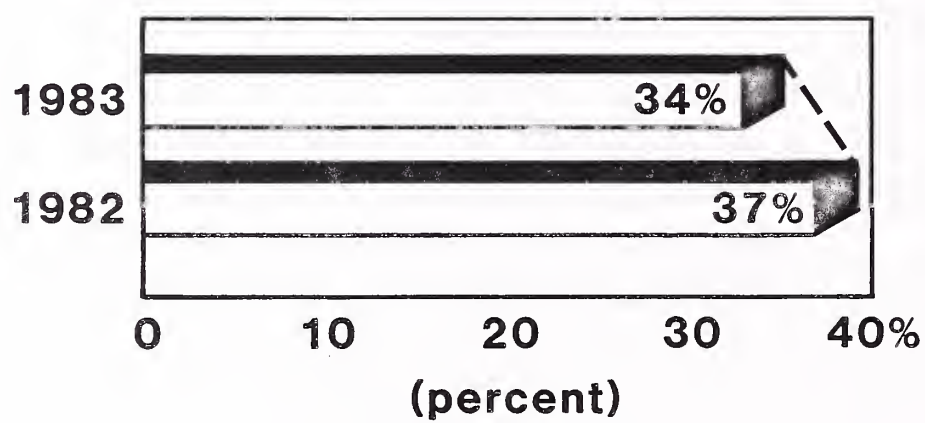
INPUT

PROFESSIONAL SERVICES MARKET



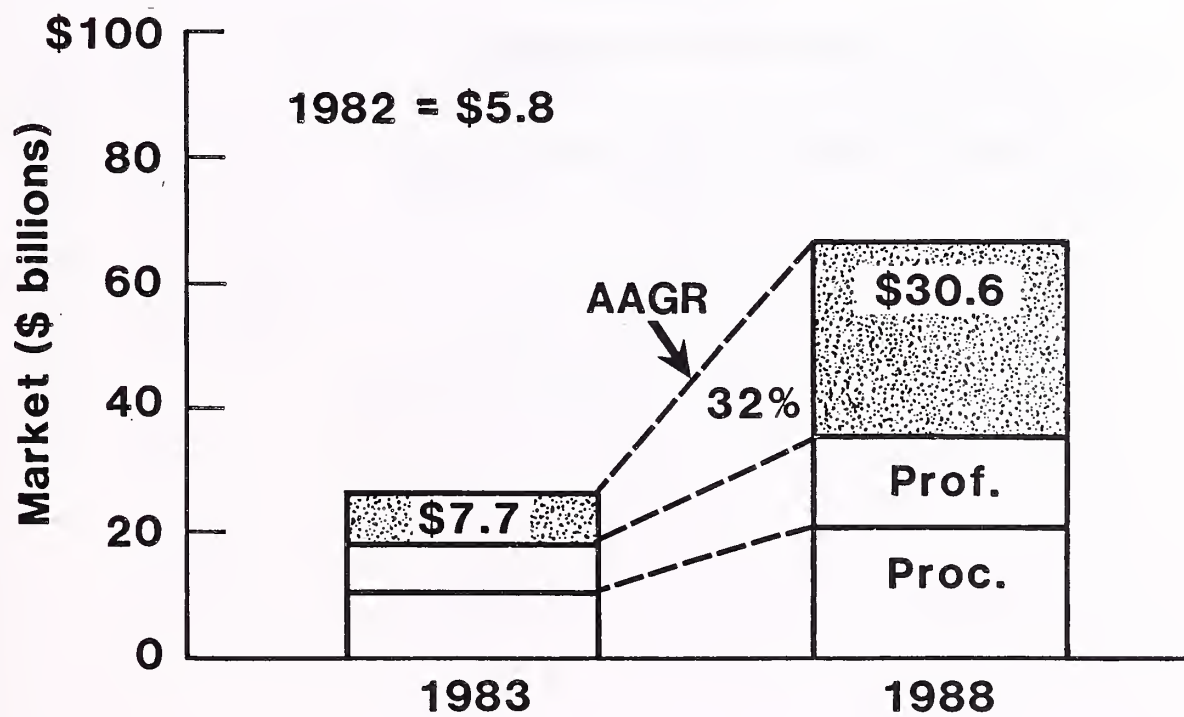
INPUT

SOFTWARE PRODUCTS ANNUAL MARKET GROWTH



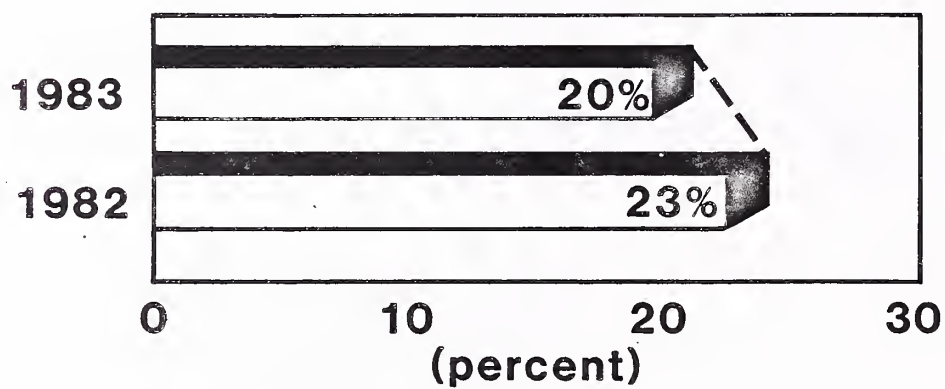
INPUT

SOFTWARE PRODUCTS MARKET



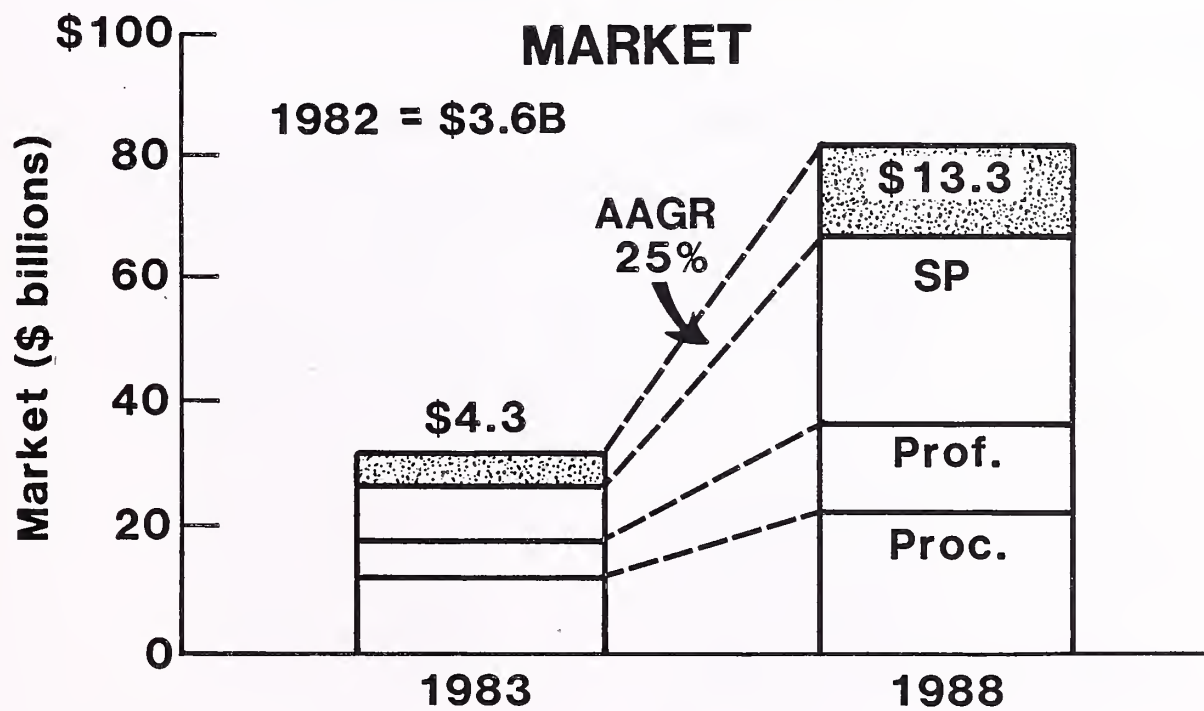
INPUT

INTEGRATED SYSTEMS ANNUAL MARKET GROWTH



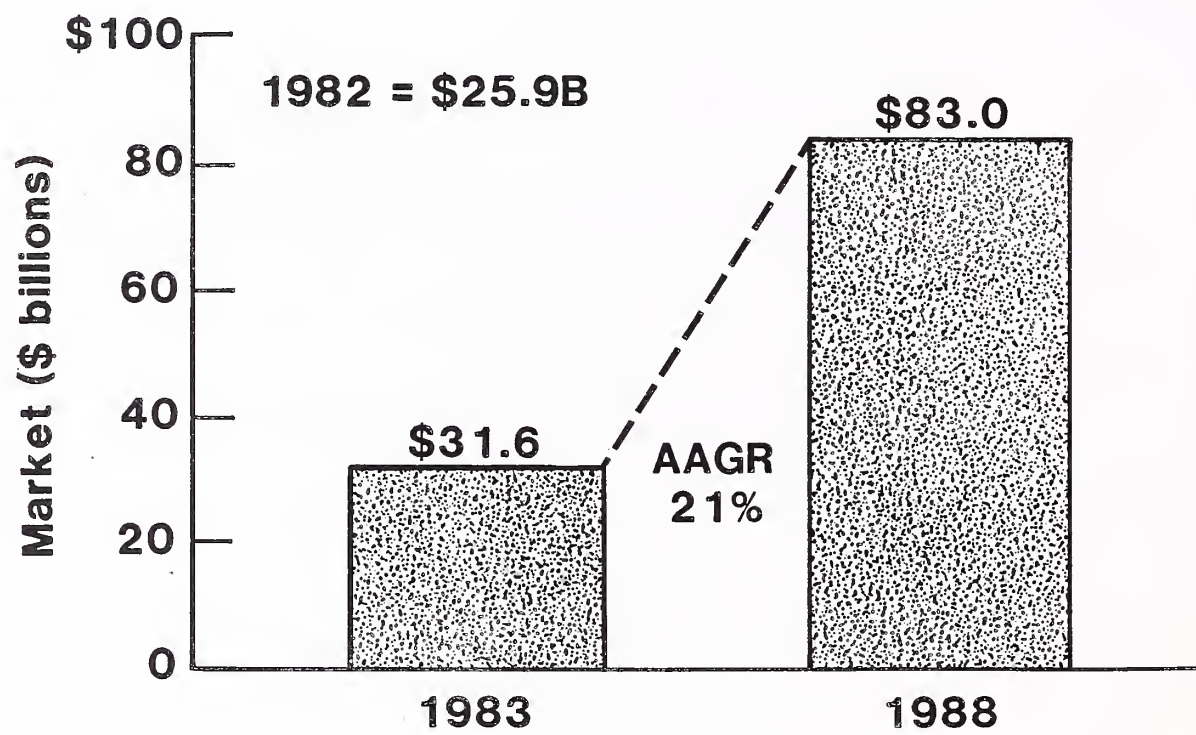
INPUT

INTEGRATED SYSTEMS MARKET



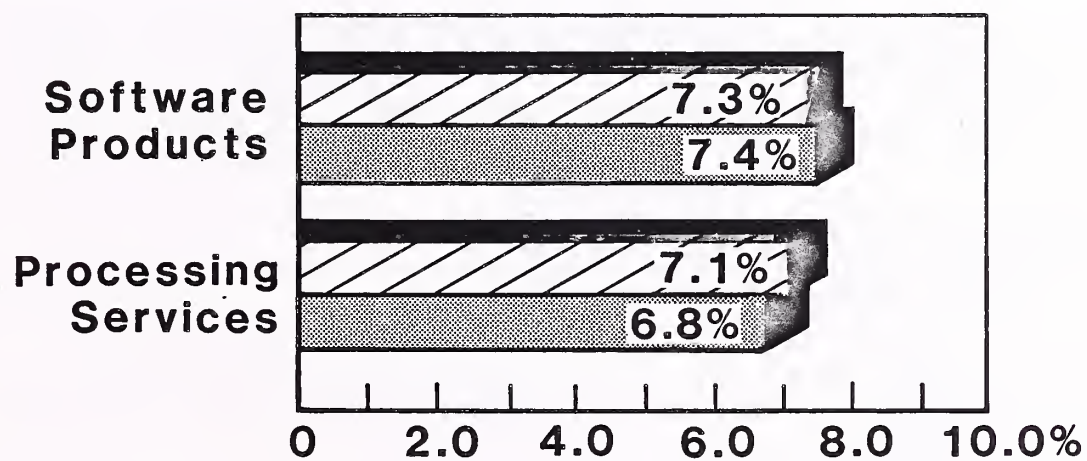
INPUT

INFORMATION SERVICES



INPUT

PROFIT* TRENDS



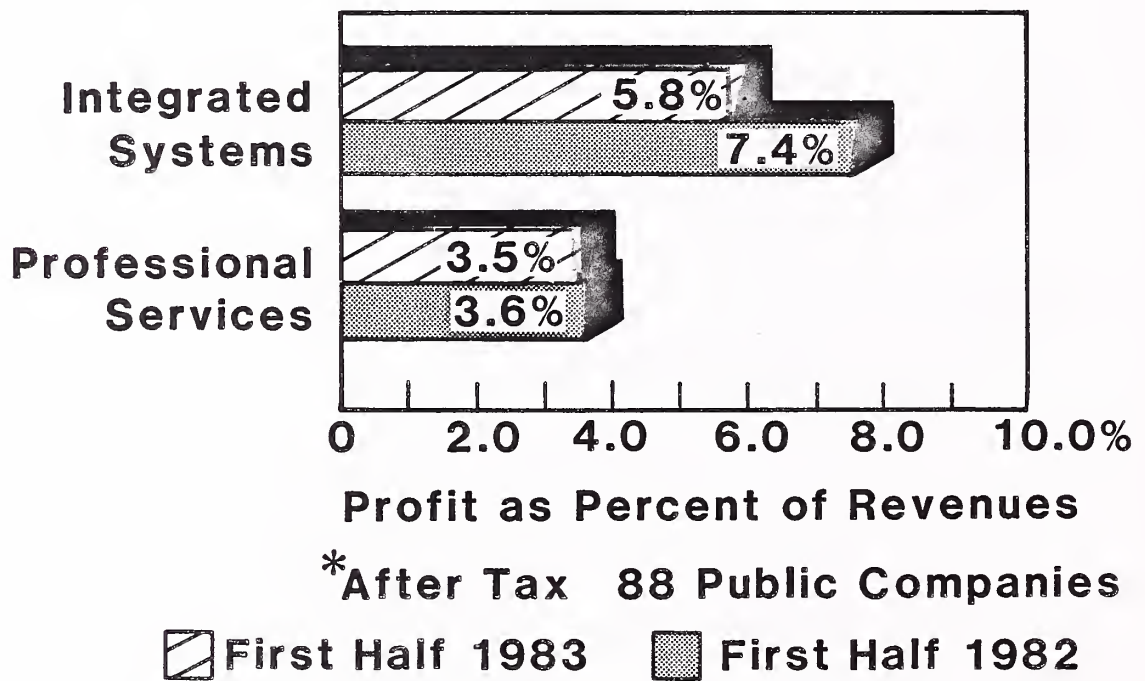
Profit as Percent of Revenues

*After Tax 88 Public Companies

▨ First Half 1983 ■ First Half 1982

INPUT

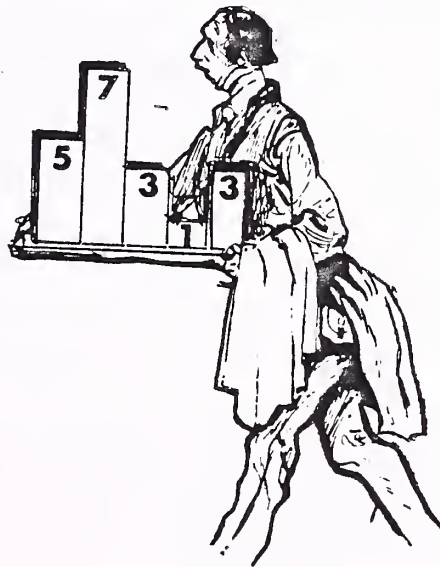
PROFIT*TRENDS



INPUT

III. COMPETITIVE OVERVIEW

- Largest
- Fastest Growing
- Acquisitions,
Disengagements



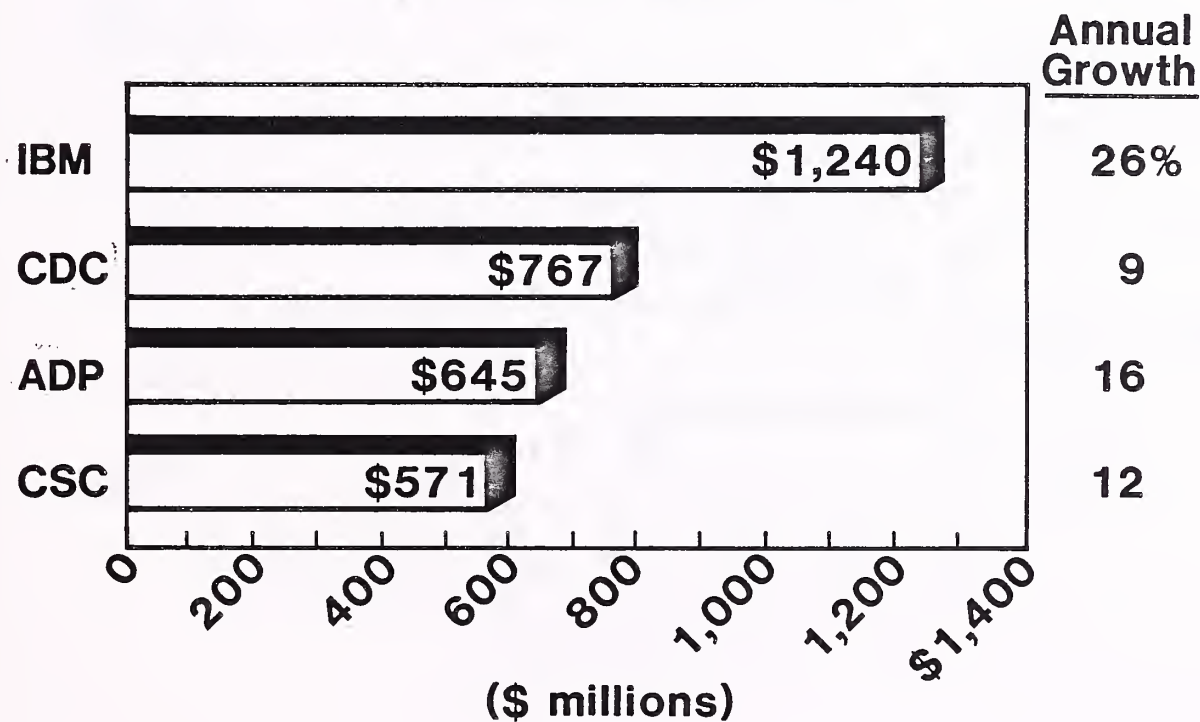
INPUT

VENDOR DATA

- **1982 Calendar Year**
- **U.S. Revenue**
- **Noncaptive**

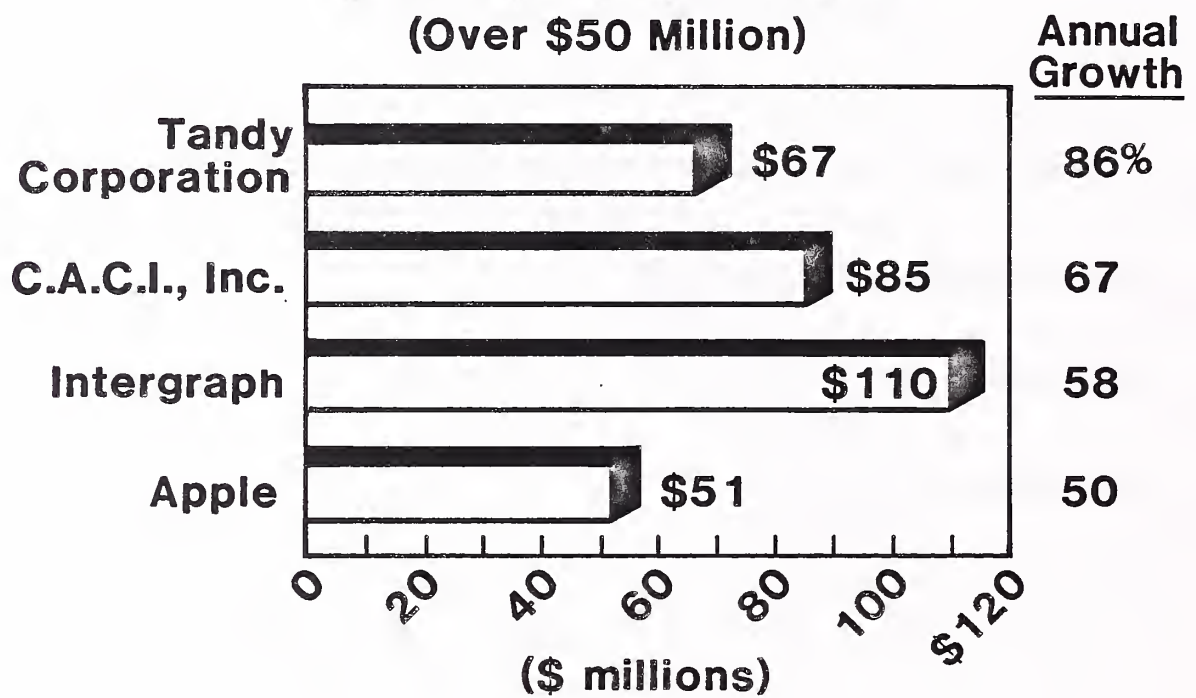
INPUT

LARGEST INFORMATION SERVICES VENDORS



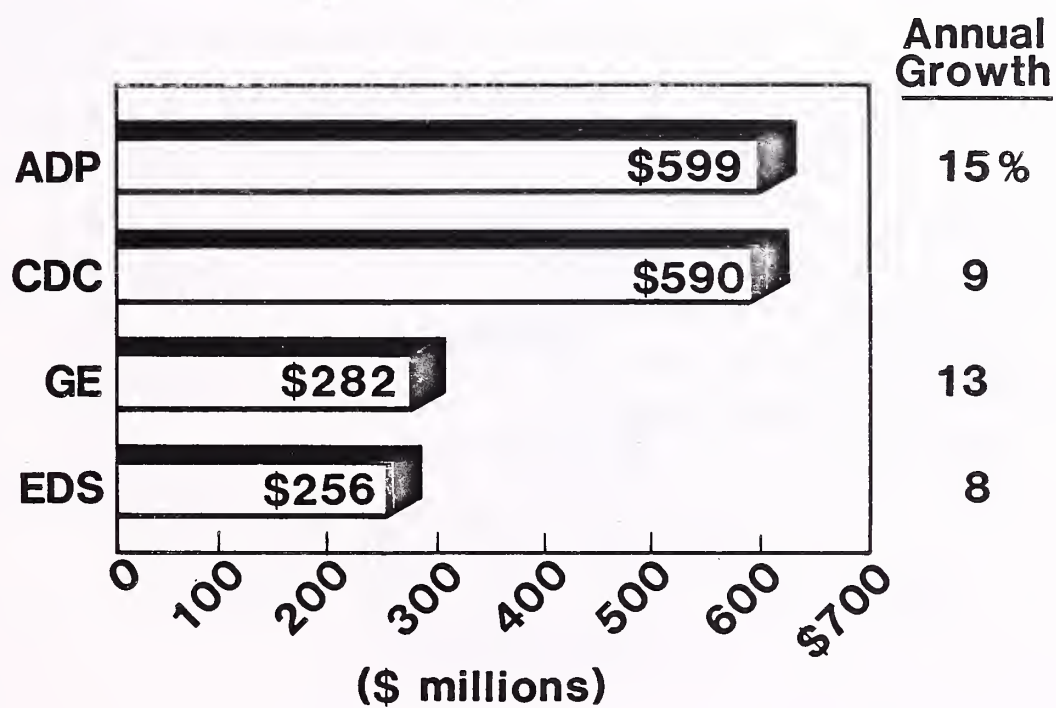
INPUT

FASTEST GROWING INFORMATION SERVICES VENDORS (Over \$50 Million)



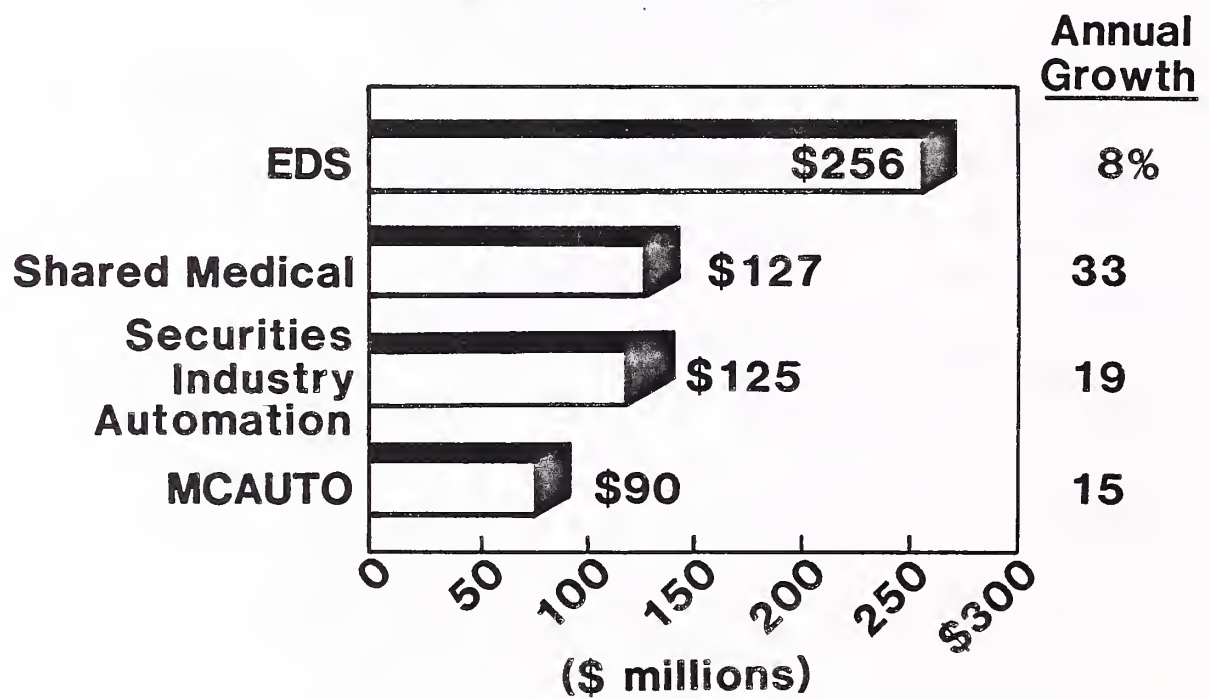
INPUT

LARGEST PROCESSING SERVICES VENDORS



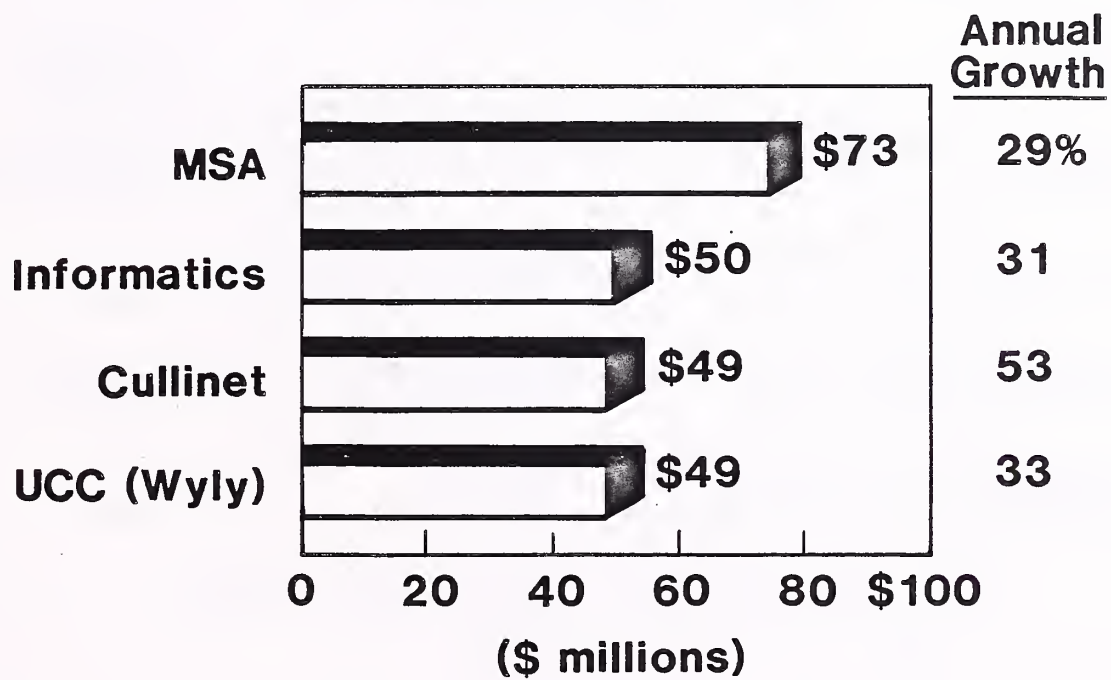
INPUT

LARGEST PROCESS FM VENDORS



INPUT

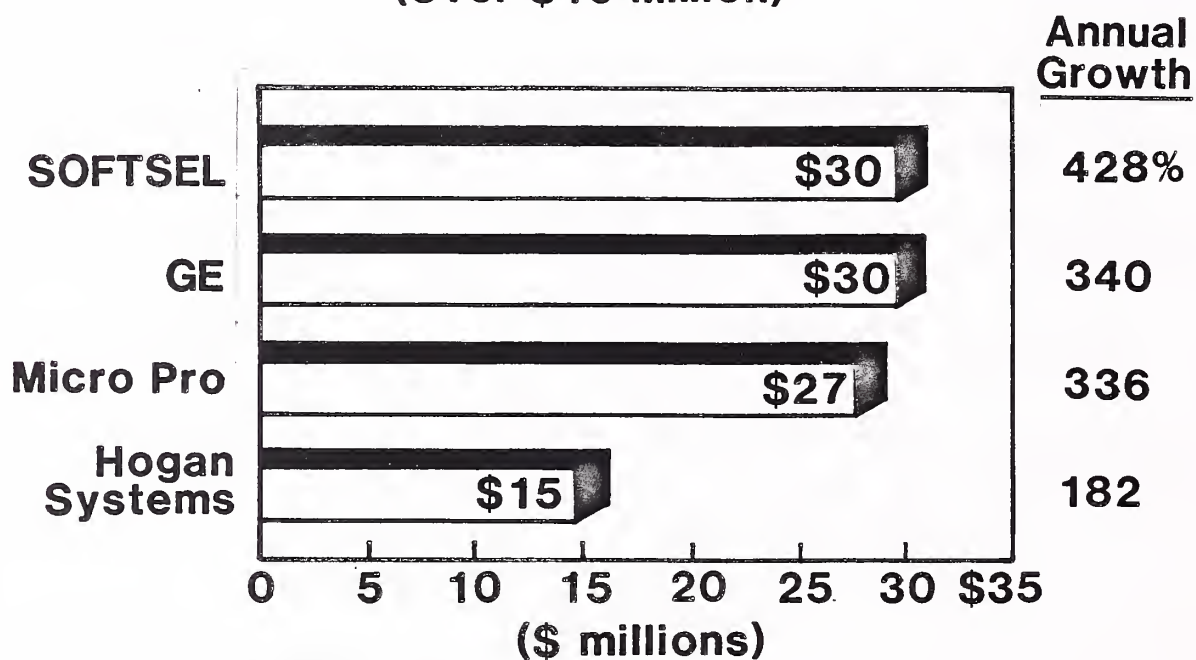
LARGEST INDEPENDENT SOFTWARE PRODUCT VENDORS



INPUT

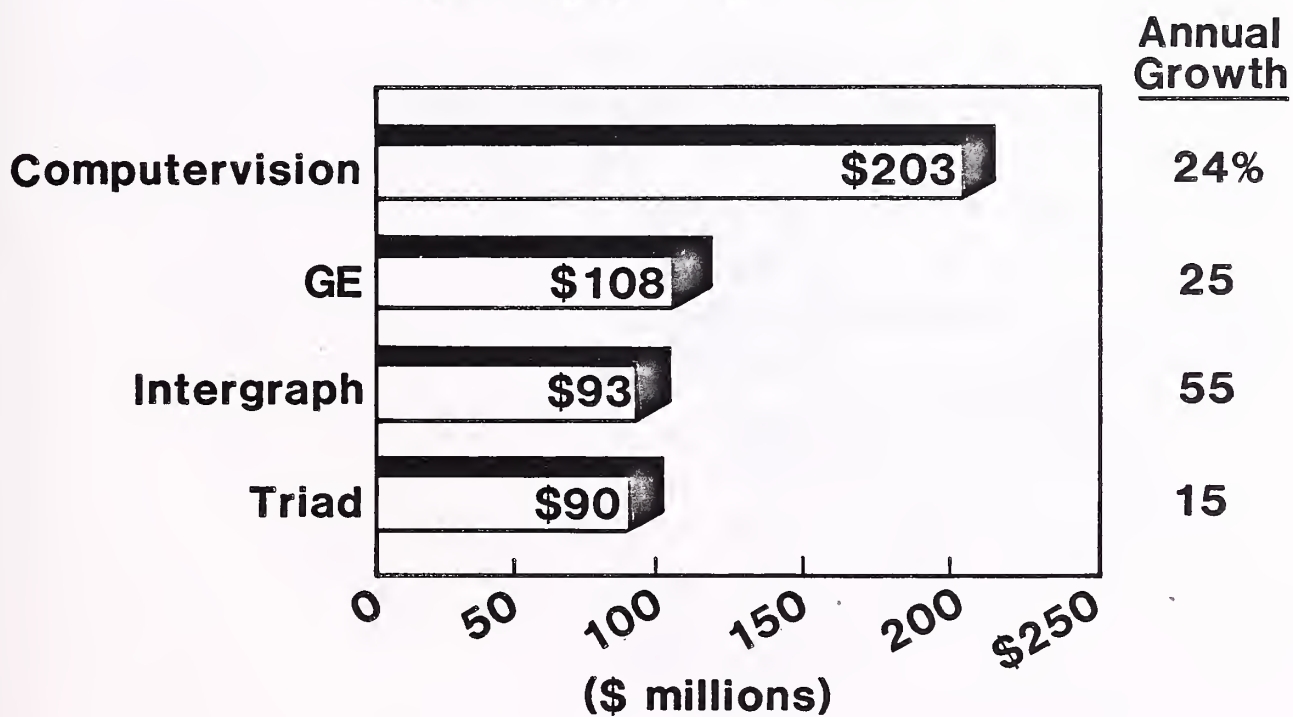
FASTEST-GROWING SOFTWARE PRODUCTS VENDORS

(Over \$10 Million)



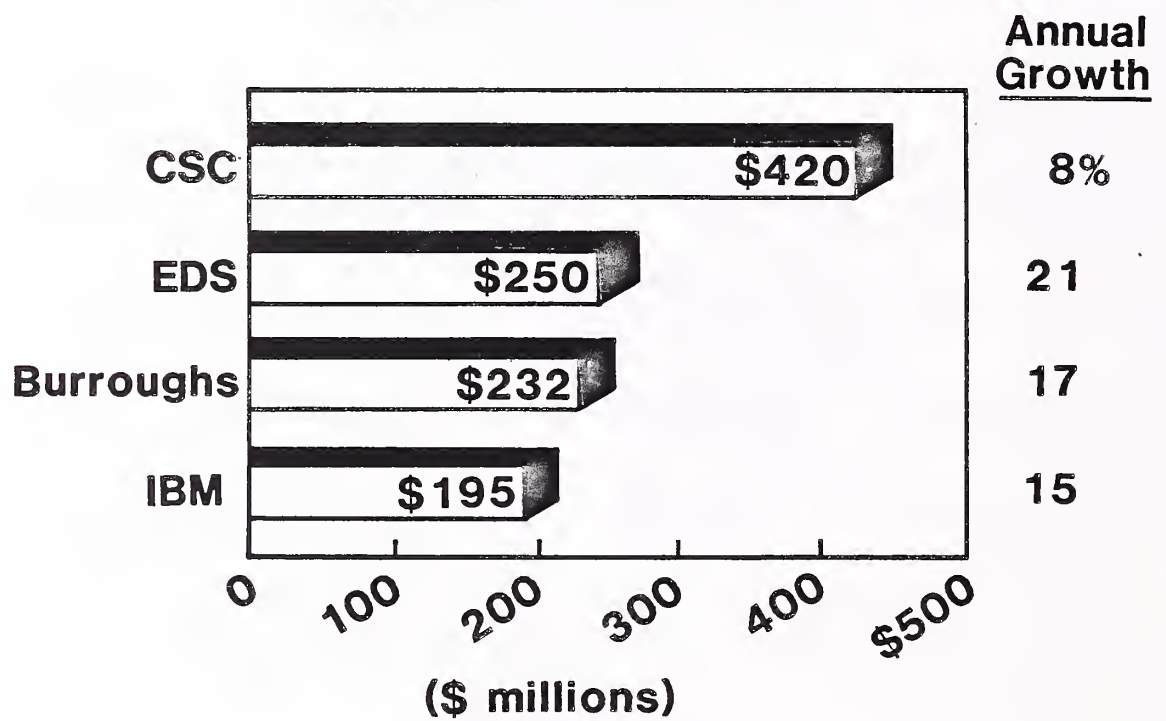
INPUT

LARGEST INTEGRATED SYSTEMS VENDORS



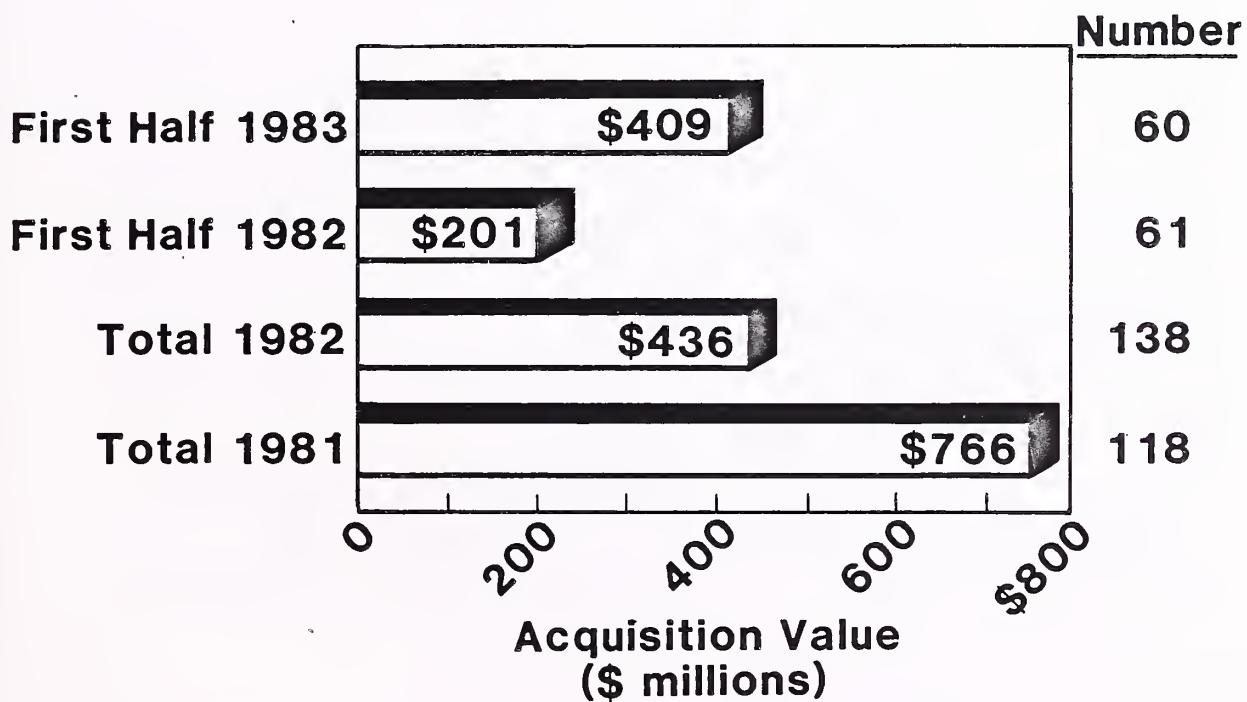
INPUT

LARGEST PROFESSIONAL SERVICES VENDORS



INPUT

ACQUISITION ACTIVITY



SOURCE: Broadview Associates

INPUT

ACQUISITIONS

Acquirer	Acquired
Dun & Bradstreet	McCormack & Dodge
Martin Marietta Data Systems	Mathematica
Scientific Software	Intercomp Development & Engineering

INPUT

ACQUISITIONS

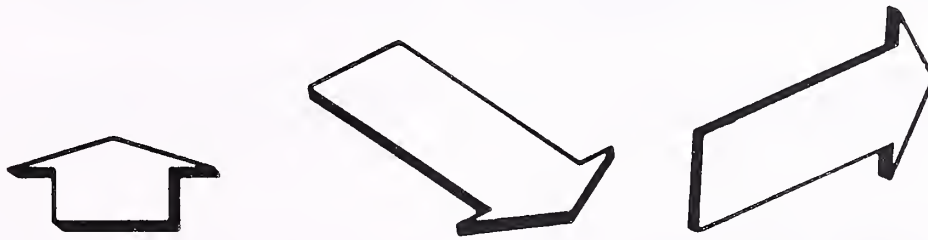
Acquirer	Acquired
ADP	GTE Telenet Services
AGS	Micro America Distributing
Computer Associates	IUS

INPUT

DISENGAGEMENTS

Disengaged By	Disengaged Unit	Sold To
Chase Manhattan Bank	Managistics, Inc.	Bank of America
ADP	CPI, Inc.	Continental Corp.
American General	NLT Computer Services	Management Group

INPUT



INDUSTRY TRENDS

- **I.S. Manager's Perspective**
- **Hardware**
- **Software**
- **Telecommunications**
- **Implications for People**

INPUT

TOP CONCERNS OF I.S. MANAGERS

Top Problems

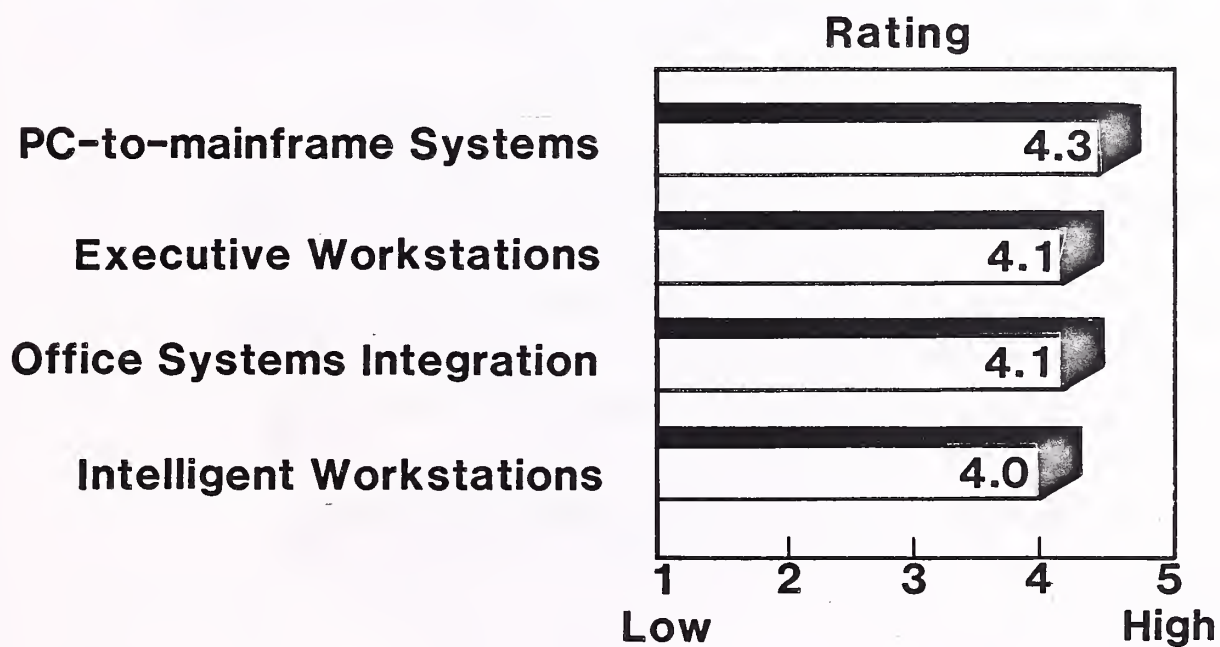
1. Software
2. Personnel
3. User Relations

Top Objectives

1. Software
2. Hardware
3. Personnel

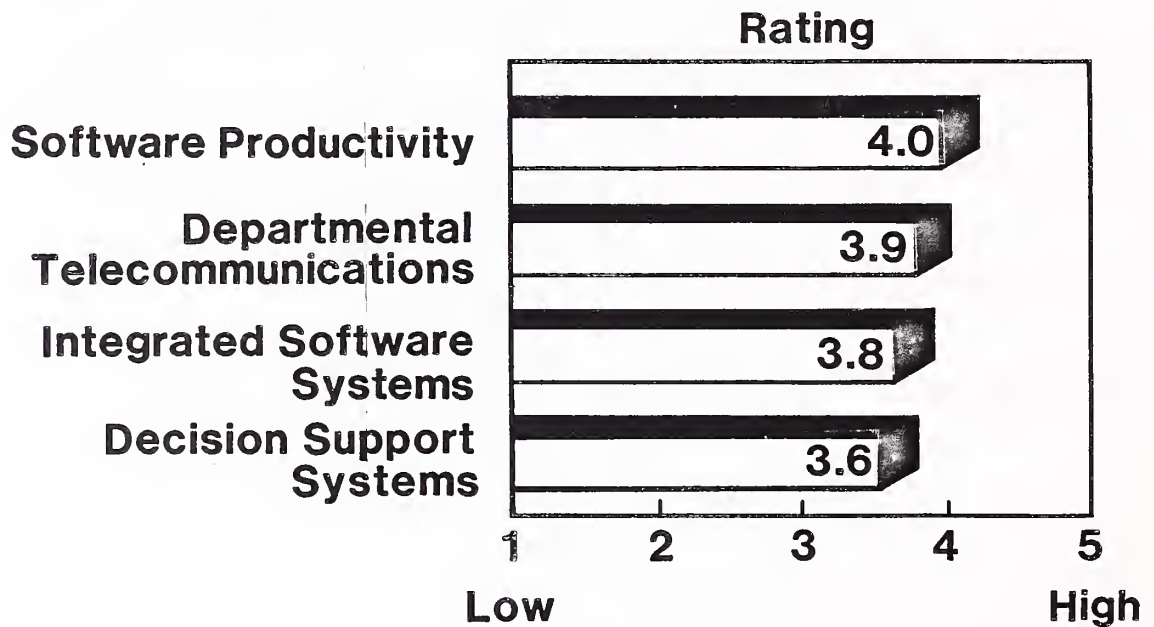
INPUT

HIGH-INTEREST AREAS OF LARGE-COMPANY I.S. EXECUTIVES



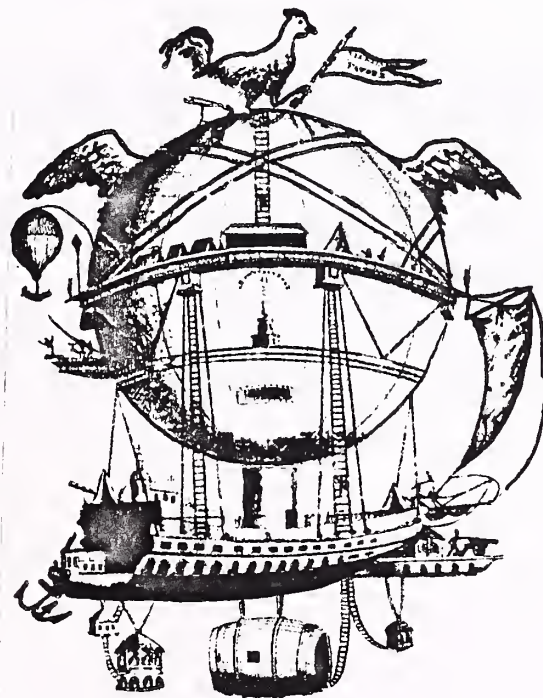
INPUT

HIGH-INTEREST AREAS OF LARGE-COMPANY I.S. EXECUTIVES



INPUT

HARDWARE



INPUT

MID-80s CENTRAL COMPUTERS

- **Will Concentrate On:**
 - **Large Shared Data Bases**
 - **Data Archiving and Retrieval**
 - **Large Transaction-driven Data Capture**
- **Will Decline in Price 10% Annually**

INPUT

MID-80s END-USER COMPUTERS

- A \$5,000 “370/158” will sit on one square foot of your desk.

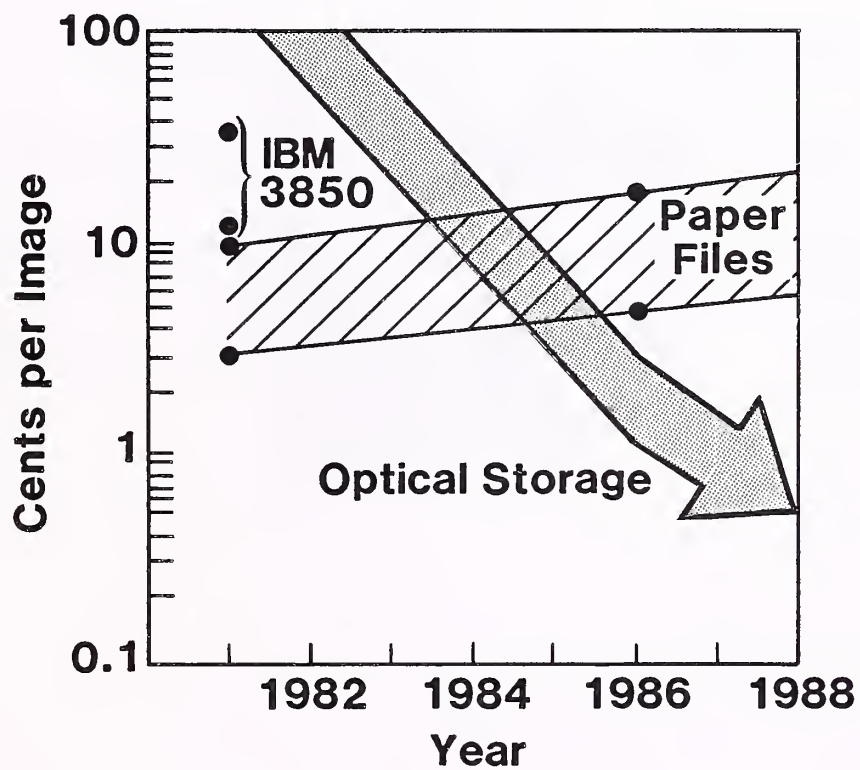
INPUT

WORKSTATIONS

- **More Integration**
 - PCs
 - Telephone
 - Voice/Data/Text/Graphics
 - Local Area Network
- **IBM/Rolm = Stronger Voice Commitment**

INPUT

OPTICAL STORAGE TO BECOME 10 TIMES CHEAPER THAN PAPER



INPUT

SOFTWARE



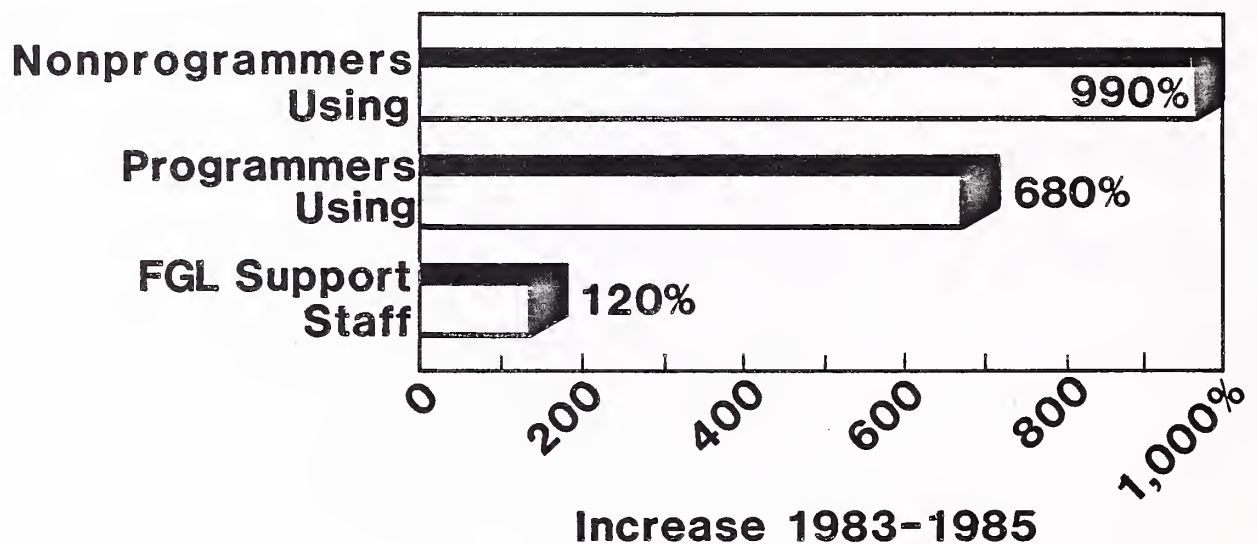
INPUT

FOURTH GENERATION LANGUAGE CONVERSION TARGETS

<u>Characteristic</u>	<u>Importance</u>
User Willing to Assume Responsibility	High
Constantly Changing User Needs	High
Defined User System Ownership	High

INPUT

EXPECTED INCREASES IN FOURTH GENERATION LANGUAGE USE



INPUT

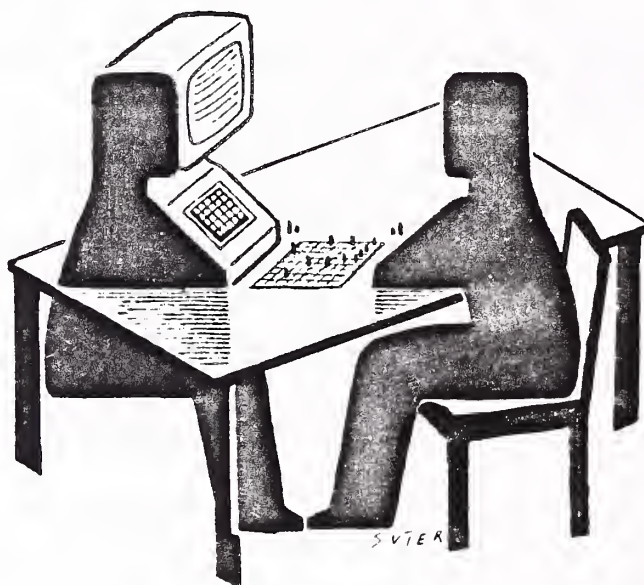
DESIGN FOR RISING USER EXPECTATIONS

- **Comprehensive Integration**
- **Windowing**
- **Better Ergonomics**
 - **Icons, Help Functions**
 - **Grows with User**
 - **Response: 0.1 Second**

INPUT

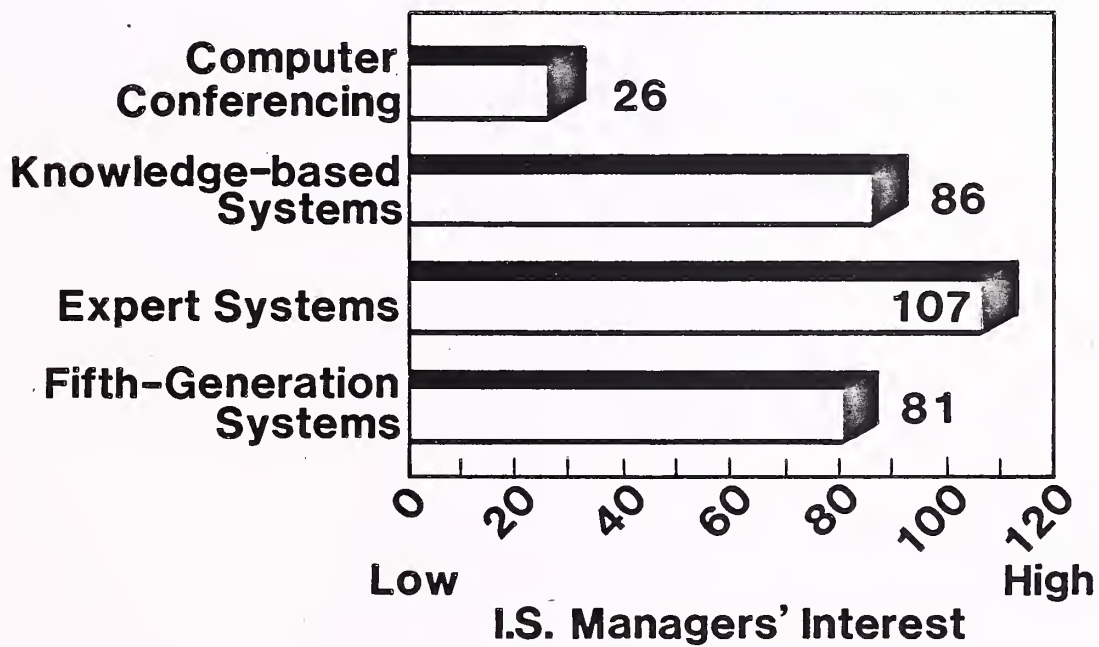
EXPERT SYSTEMS GAINING COMMERCIAL ACCEPTANCE

- Medicine
- Law
- Business



INPUT

INTEREST IN NEW OFFICE TECHNOLOGIES



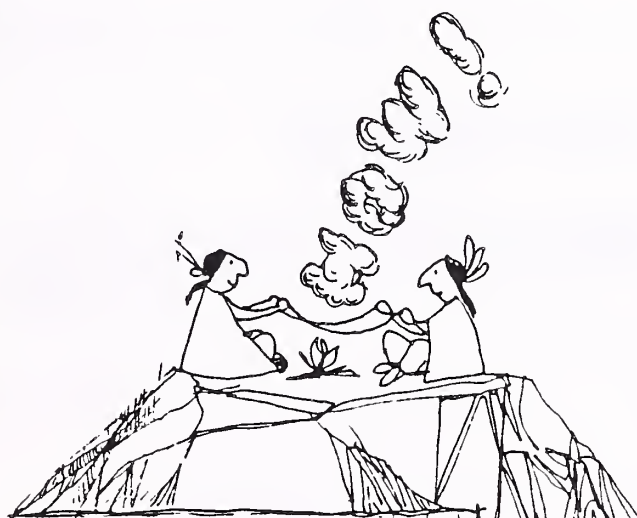
INPUT

SOFTWARE RECOMMENDATIONS

- **Upgrade Current Products with . . .**
 - **DBMS**
 - **Fourth Generation Languages**
 - **Friendlier User Interfaces**

INPUT

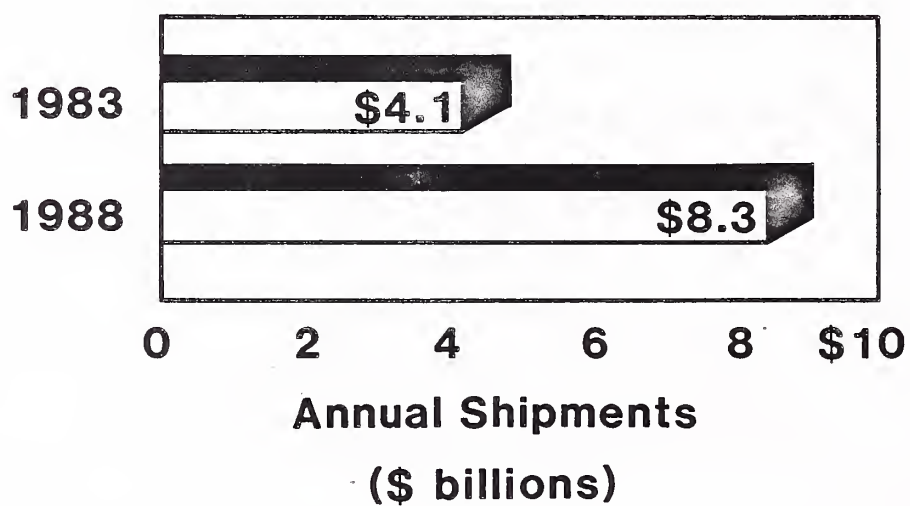
TELECOMMUNICATIONS



INPUT

TELECOMMUNICATIONS TRENDS

- Equipment Shipments to Double



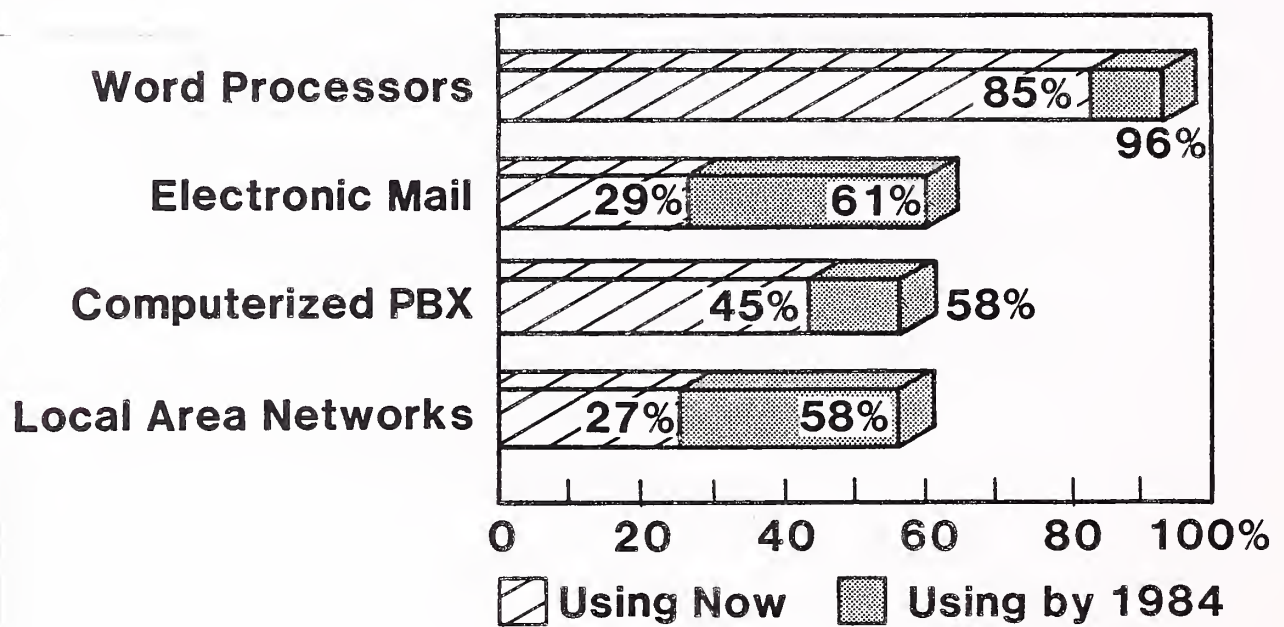
INPUT

TELECOMMUNICATIONS TRENDS

- **Rapid Growth for:**
 - **Private Networks**
 - **LANs**
- **High-speed Voice and Data Integration**

INPUT

MORE TELECOMMUNICATIONS-BASED APPLICATIONS



INPUT

IMPACT OF AT&T BREAKUP

- **Radically Different Environment**
- **Rate Hikes**
- **Usage-based Pricing**

INPUT

IMPACT OF AT&T BREAKUP

- **Emergence of Multiple Leased Line Suppliers**
- **More Bypass Vendors**
- **Competition in Your Business**

INPUT

IMPACT OF AT&T BREAKUP ON I.S. MANAGERS

- **Must Do More Network Managing, Planning**
- **Evaluate More Vendor Options**
- **Must Reassess Current Network Cost Effectiveness**
- **More Interest in Technology Directions**

INPUT

IMPACT OF AT&T BREAKUP: VENDOR IMPLICATIONS

- **Cost Savings Appeal**
- **Higher Demand For:**
 - **Error-free Services**
 - **Network Software (Gateways, Protocol Converters)**
 - **Network Management Consulting**

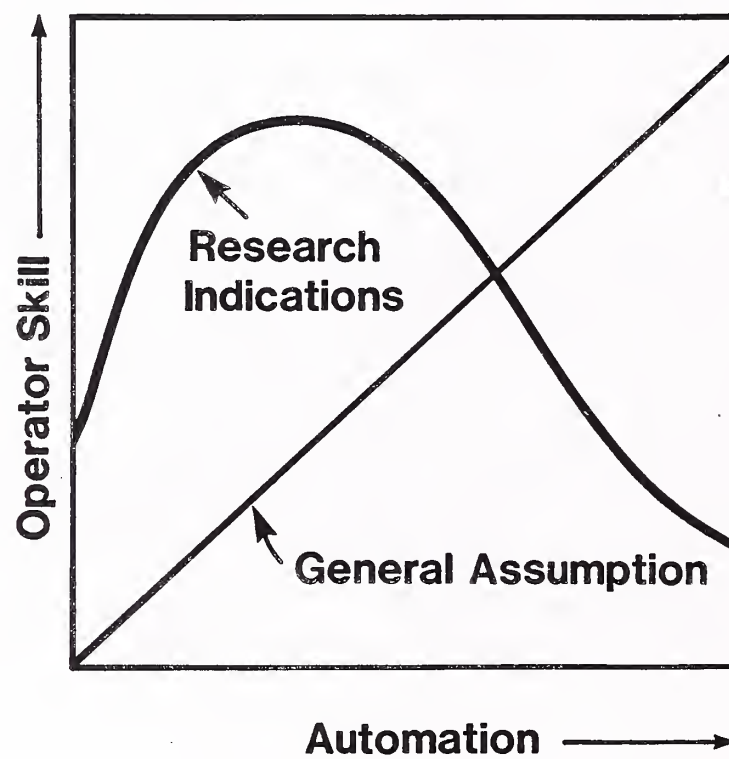
INPUT

IMPLICATIONS FOR PEOPLE



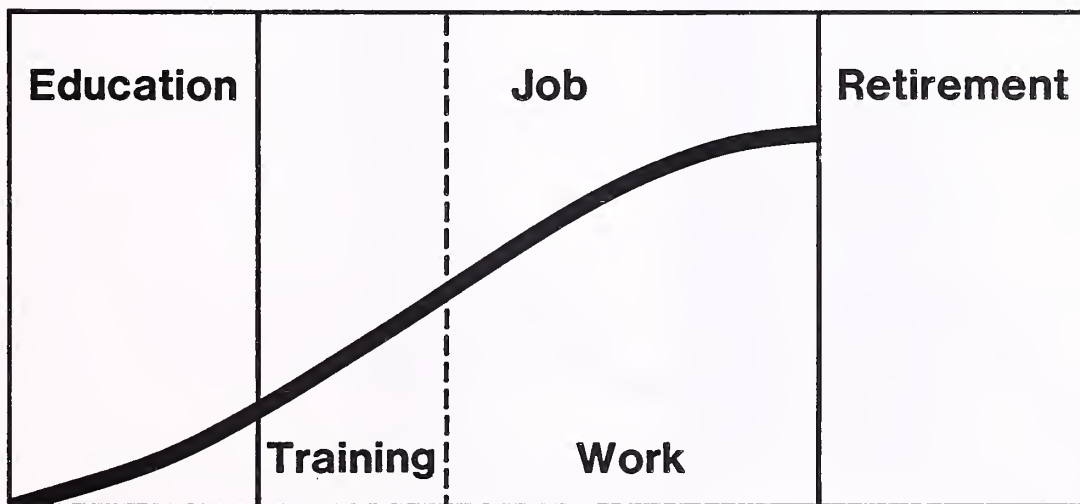
INPUT

SKILL VERSUS AUTOMATION



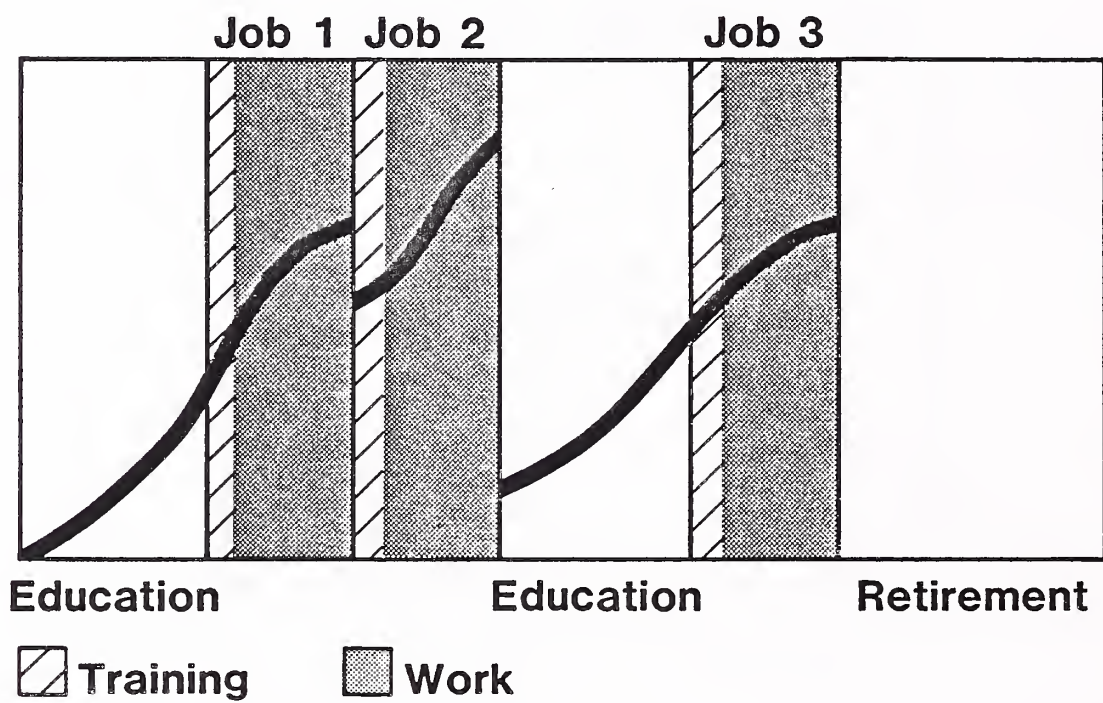
INPUT

OLD CAREER CYCLES



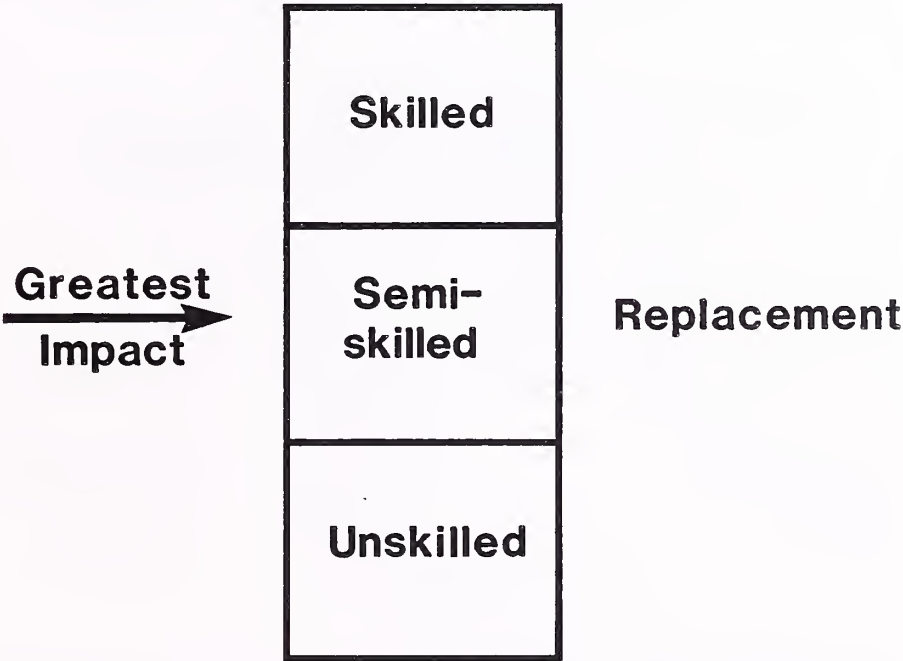
INPUT

NEW CAREER CYCLES



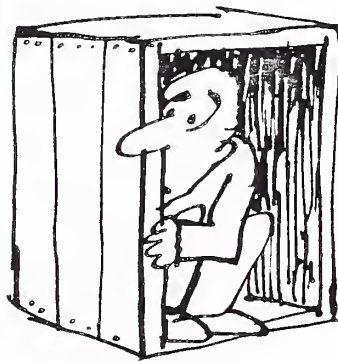
INPUT

WORKFORCE IMPACT



INPUT

REVOLUTION IN END-USER COMPUTING

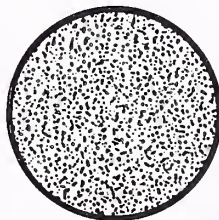


- Scope
- Information Centers
- Personal Computers
- Office Systems

INPUT

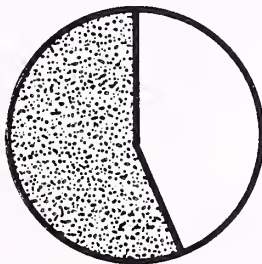
CHANGES IN COMPUTING FOCUS

**Traditional
Computing
= 100%**



1970 = 1.0*

**Traditional
Computing
= 60%**



**End-user
Computing
= 40%**

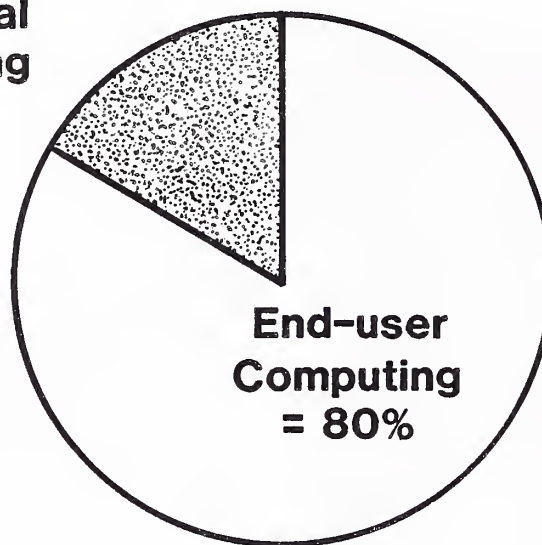
1980 = 8.0

*** Relative processing power, with 1970 = 1**

INPUT

CHANGES IN COMPUTING FOCUS

**Traditional
Computing
= 20%**



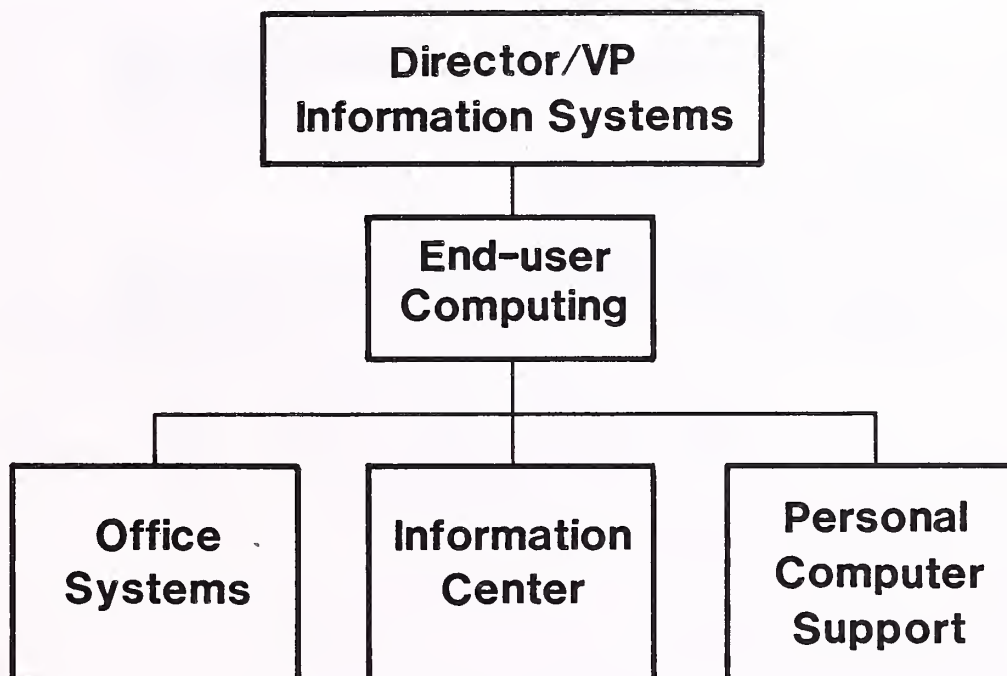
**End-user
Computing
= 80%**

1990 = 160.0

Relative processing power, with 1970 = 1

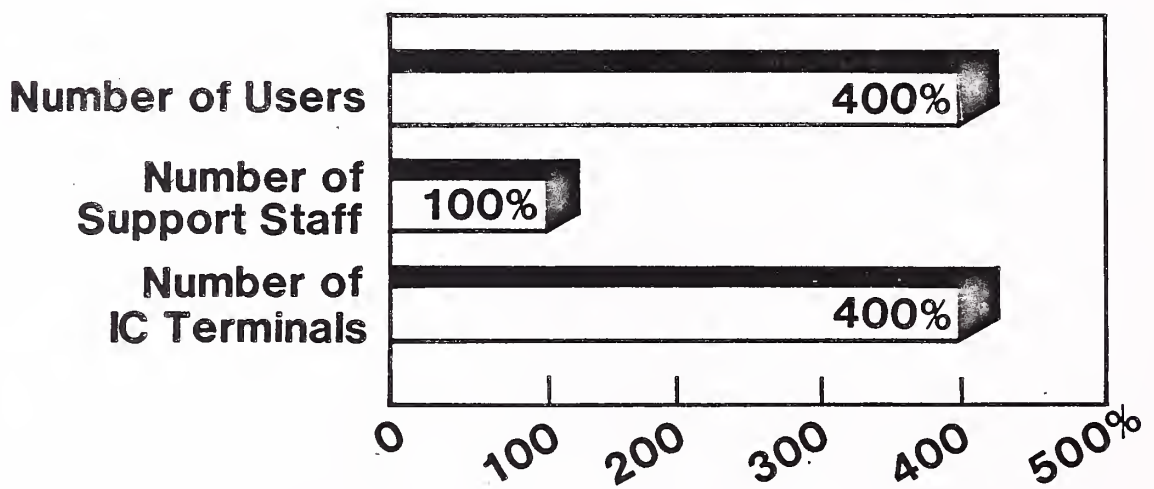
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“END-USER COMPUTING” ORGANIZATION



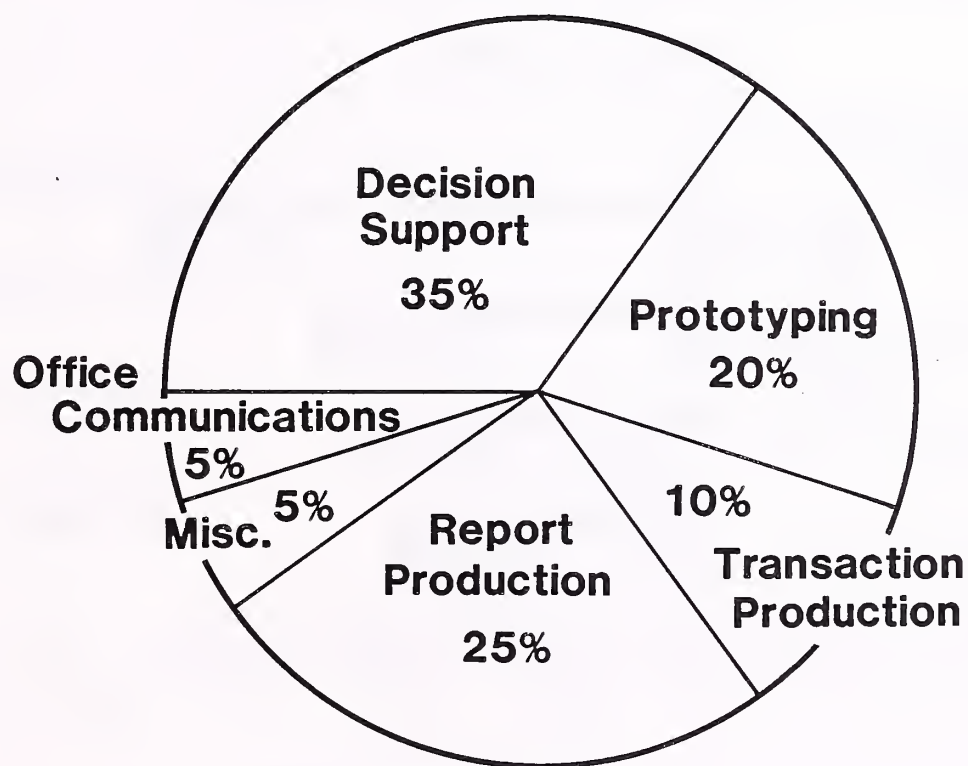
INPUT

INFORMATION CENTER GROWTH, 1983-1985



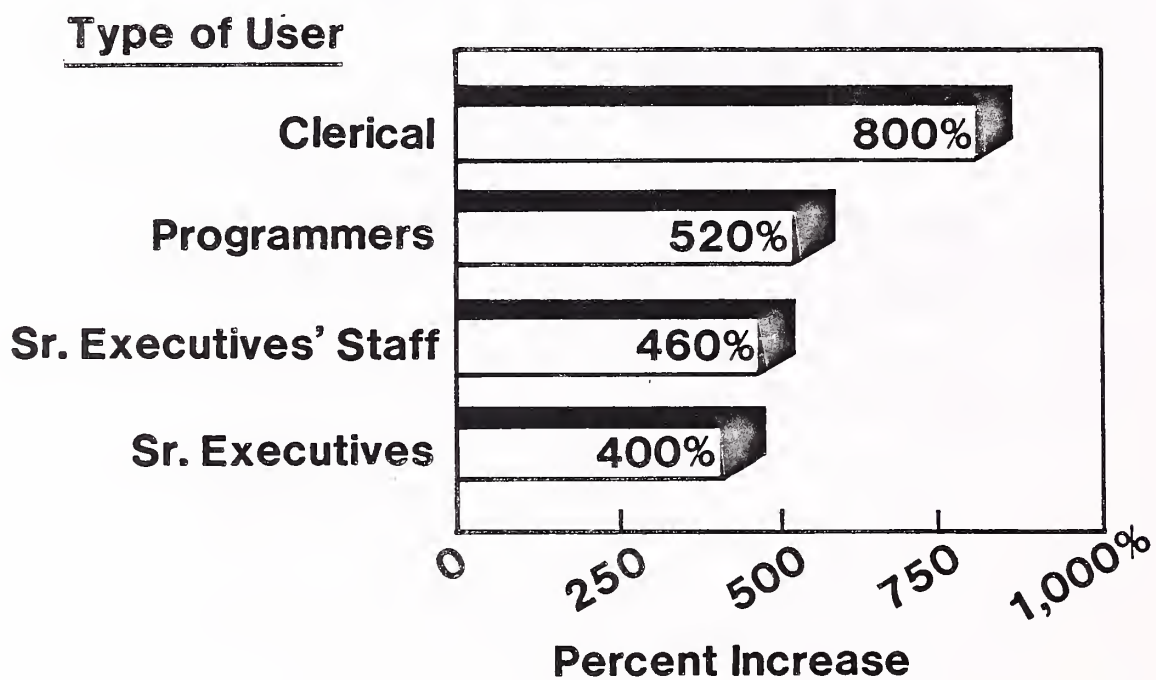
INPUT

TYPICAL INFORMATION CENTER APPLICATIONS



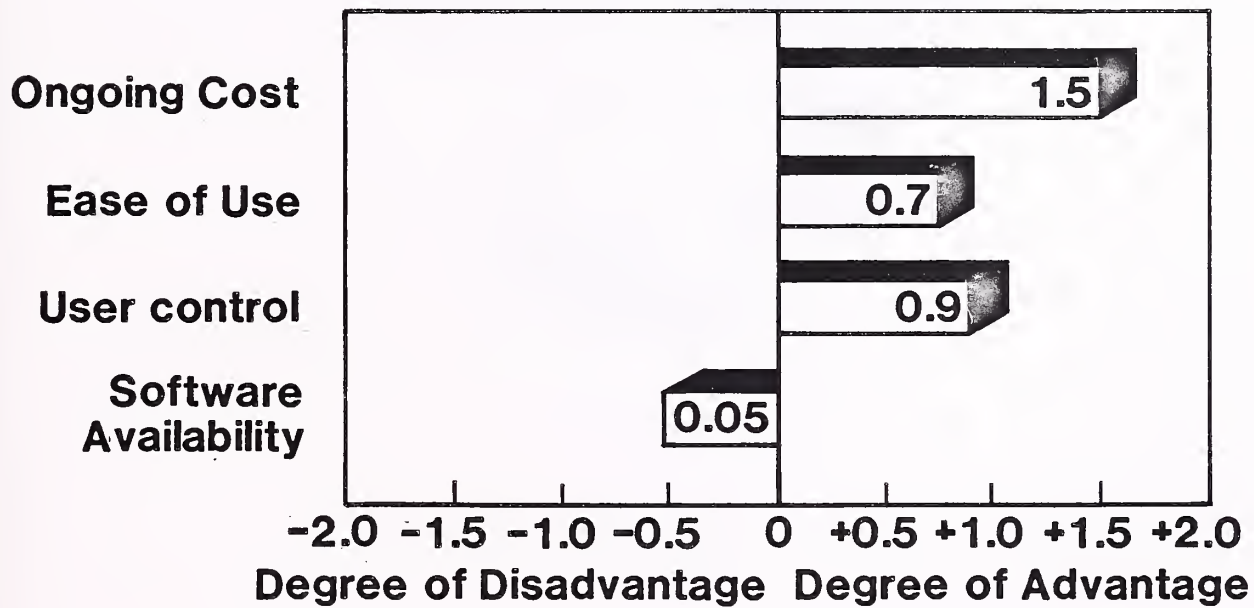
INPUT

INCREASE IN TYPE OF INFORMATION CENTER USER, 1983-1985



INPUT

THE INFORMATION CENTER COMPARED TO RCS



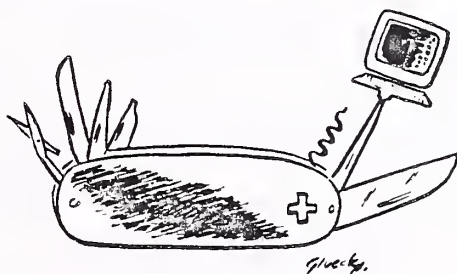
INPUT

INFORMATION CENTER OPPORTUNITIES

- **RCS Entry to I.S. Manager**
- **Support and Training**
- **Software**

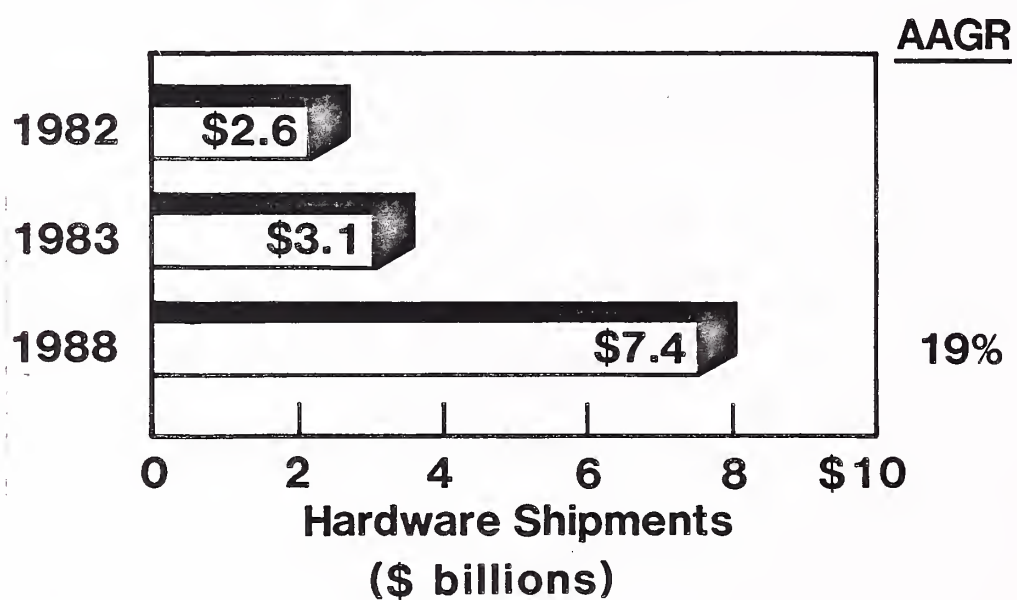
INPUT

PERSONAL COMPUTERS



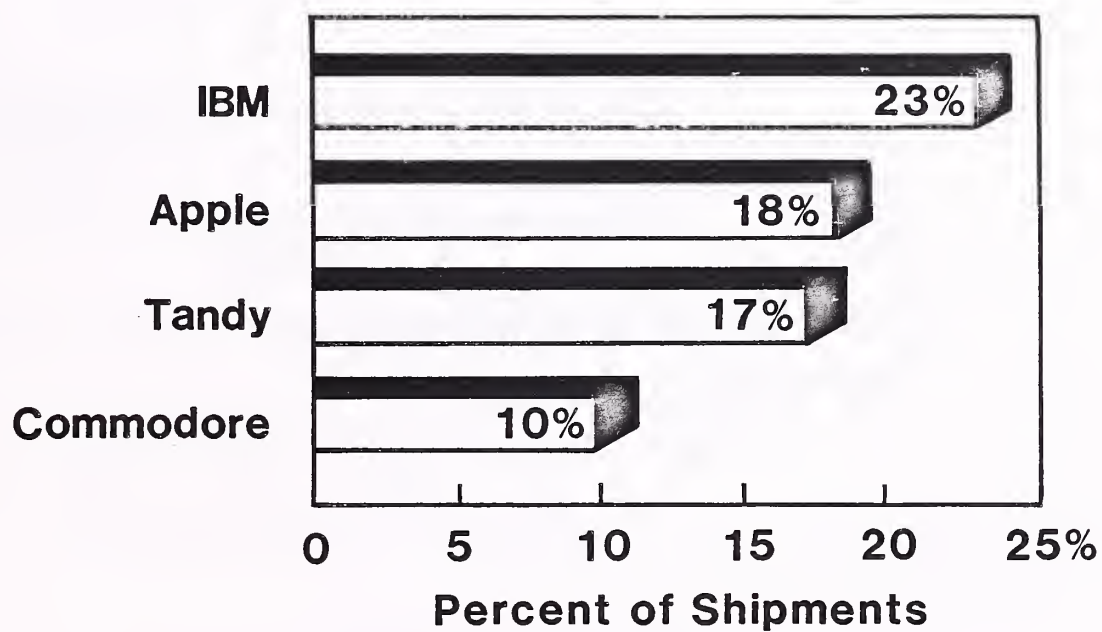
INPUT

PERSONAL COMPUTER FORECAST (Business Usage)



INPUT

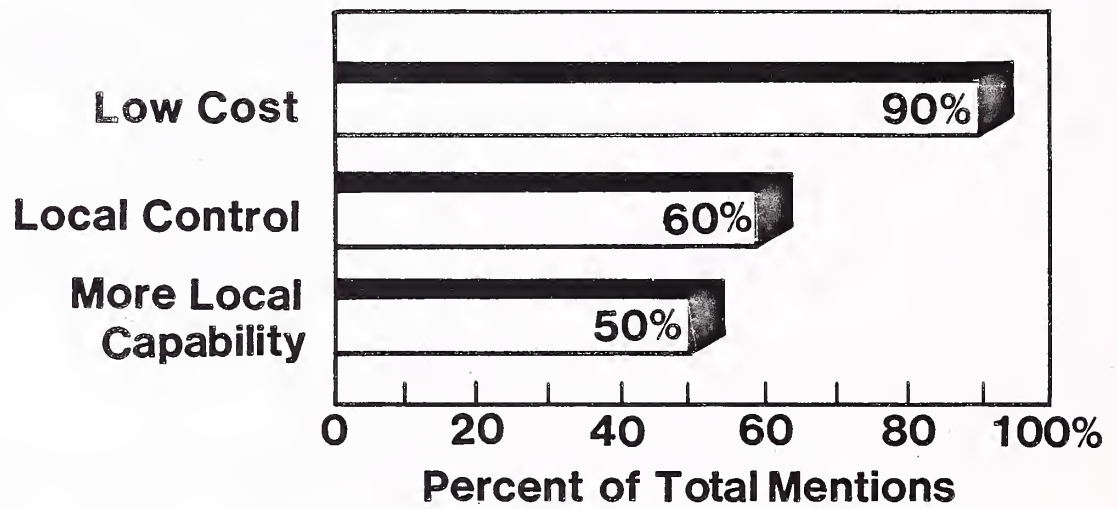
PC MARKET SHARES HARDWARE SHIPMENTS, 1982



INPUT

WHY PCs?

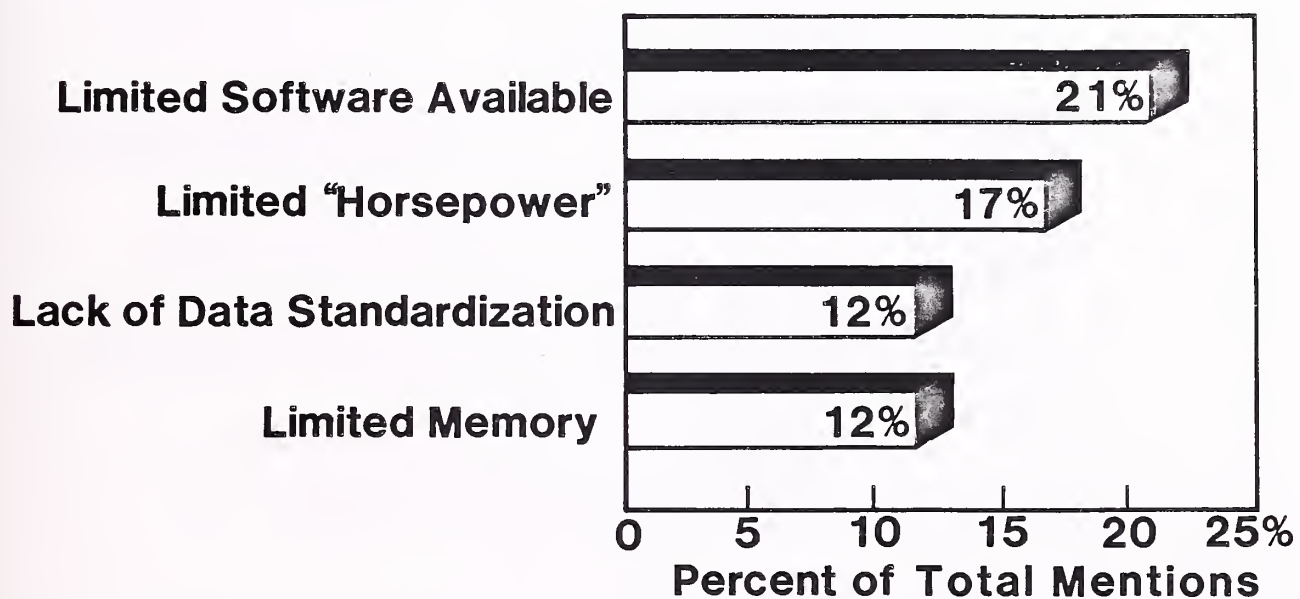
User Decision Factors



• Sound Familiar?

INPUT

SHORTCOMINGS OF PCs



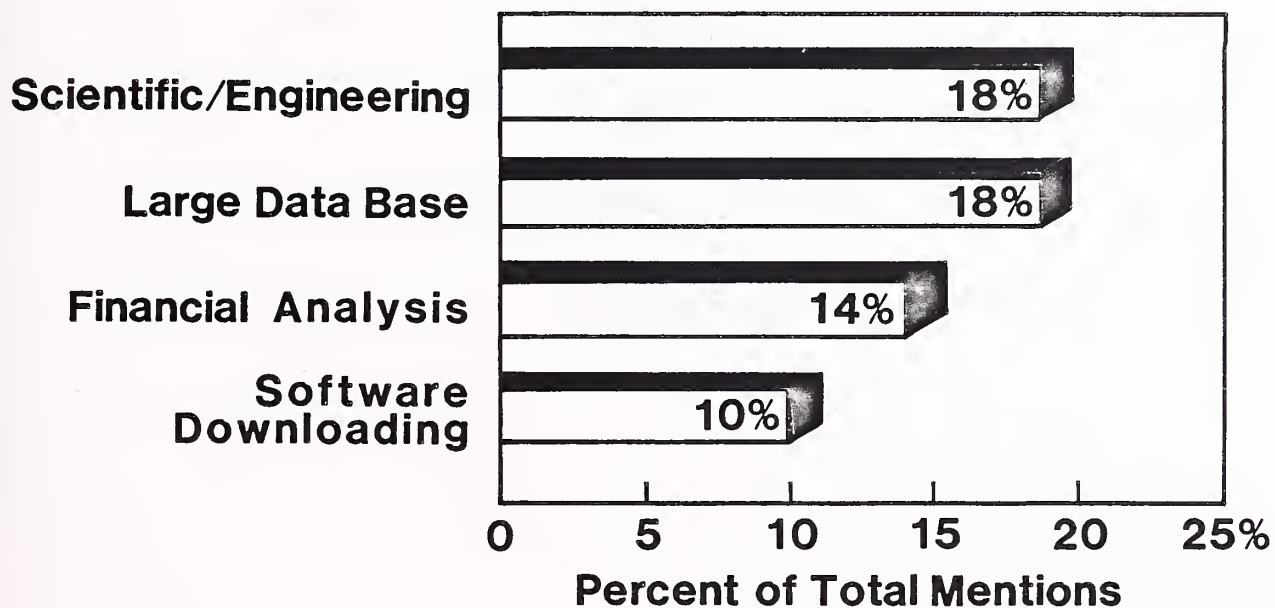
INPUT

PC HARDWARE TRENDS (Business Usage)

- **20% Annual Price Decline**
- **More:**
 - **Interconnections**
 - **Multi-user Systems**
 - **Fixed Disk Storage**
 - **Quality Printers**
- **Evolving to Small Business Systems**

INPUT

APPLICATION CHARACTERISTICS DESIRED BUT CONSIDERED INFEASIBLE ON PCs



INPUT

PC SOFTWARE TRENDS

- **Higher Level Operating Systems**
- **Enhanced Portability**
- **Improved Data Security**
- **More DBMS-based Applications**
- **Wider Pricing Ranges**

INPUT

PC OPERATING SYSTEMS

- **Many Options (PC-DOS, CP/M, UNIX, XENIX, p-System, PICK, etc.)**
- **Corporations Beginning to Standardize**
- **Shakeout Coming**

INPUT

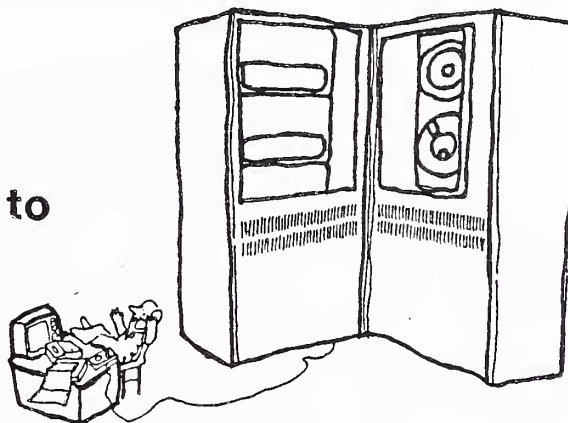
PC OPERATING SYSTEMS

- **Evaluate Carefully:**
Vendor Friendly \neq End-user Friendly
- **Likely Volume Winner: PC-DOS**

INPUT

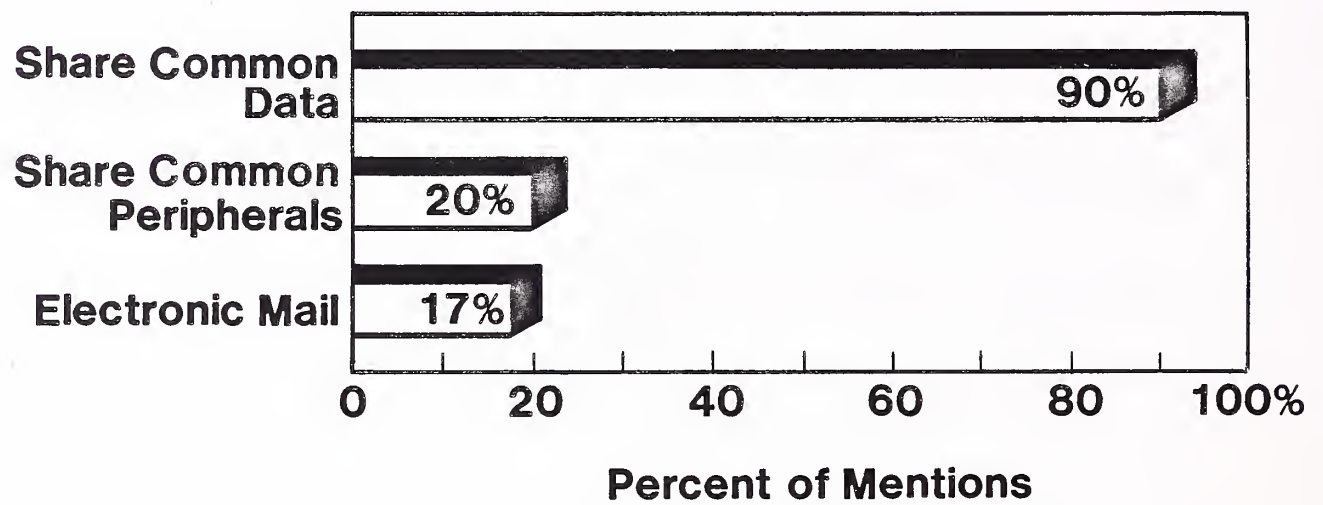
PC-TO-MAINFRAME OFFERINGS

- **PC Shift from Personal to Departmental Use**
- **Explosion of Products**
- **Leadership from Mainframe Vendors**



INPUT

PURPOSES OF INTERCONNECTING PCs



INPUT

PC DISTRIBUTION IMPLICATIONS

- **Distribution Channel Selection Is Critical**
- **Brand Name Recognition a Key Asset**
- **Watch Out for . . .**
 - **Crowded Dealer Shelves**
 - **Dealer Shakeout**
- **Consider Mainframe Sales Force**

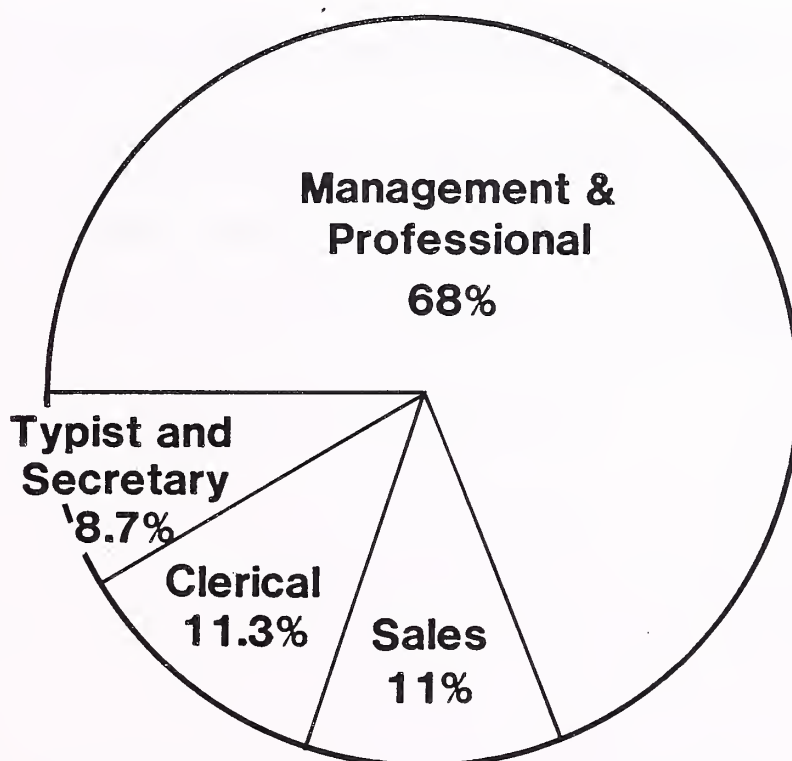
INPUT

OFFICE SYSTEMS



INPUT

THE PROFESSIONAL: THE EMERGING OFFICE SYSTEMS USER



Office Categories by Salary Cost

INPUT

LAN DIRECTIONS

- **Fewer Single-vendor LANs**
- **Reduced Cost Per Connection**
- **Progress toward Standardization**
- **IBM Entry**

INPUT

OFFICE SYSTEMS IMPLICATIONS

- **Go with Likely Desktop Winners**
- **Establish Competitive Edge Via . . .**
 - **Exceptionally User Friendly Systems**
 - **High Quality Training and Support**
 - **Data Security Features**
 - **Application Integration**

INPUT



MARKET OUTLOOK

- Industry Sectors
- Delivery Mode Outlook

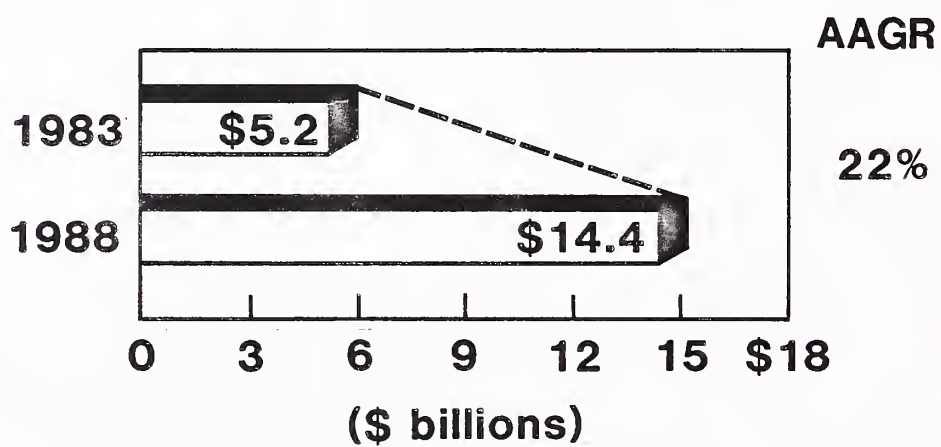
INPUT

BANKING AND FINANCE



INPUT

BANKING AND FINANCE



INPUT

TRENDS

- **New Banking Options**
 - Insurance, Real Estate
 - Information Services
- **Entry of Nonbanking Competitors**

INPUT

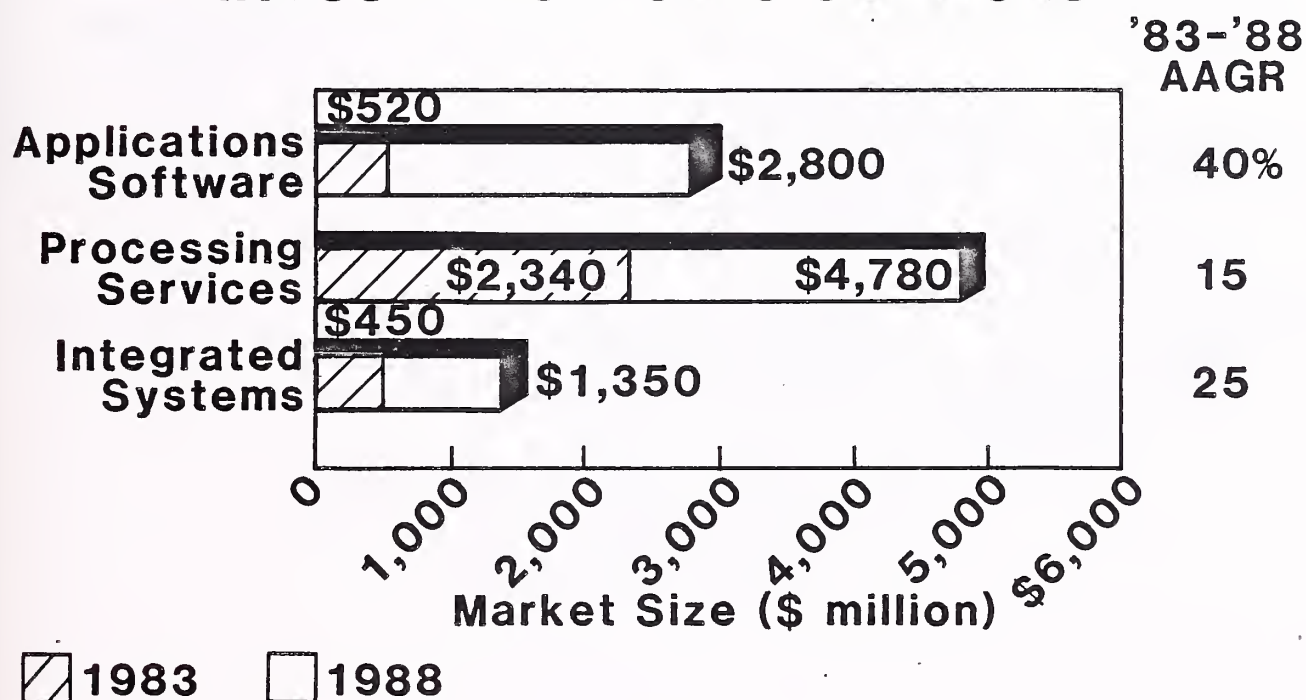
Banking and Finance

MORE COMPETITION FOR VENDORS

- **Large Banks**
- **IBM**
- **Current Vendors**
 - **More Banking Departments Served**
 - **More Delivery Modes Offered**

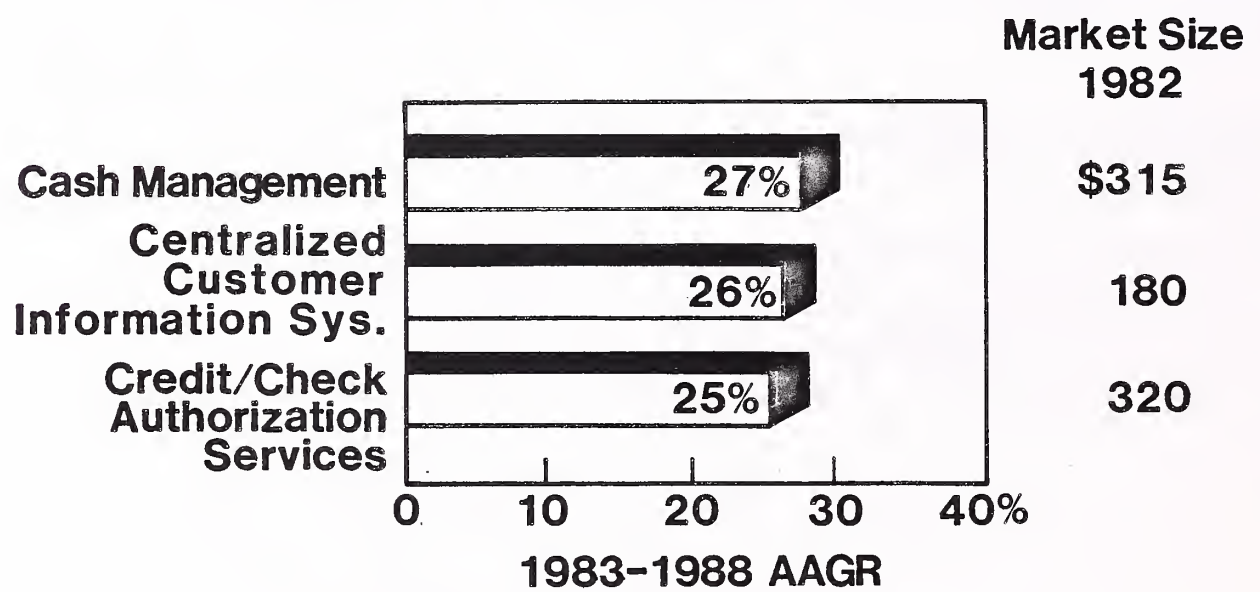
INPUT

BANKING AND FINANCE INDUSTRY SPECIFIC SERVICES



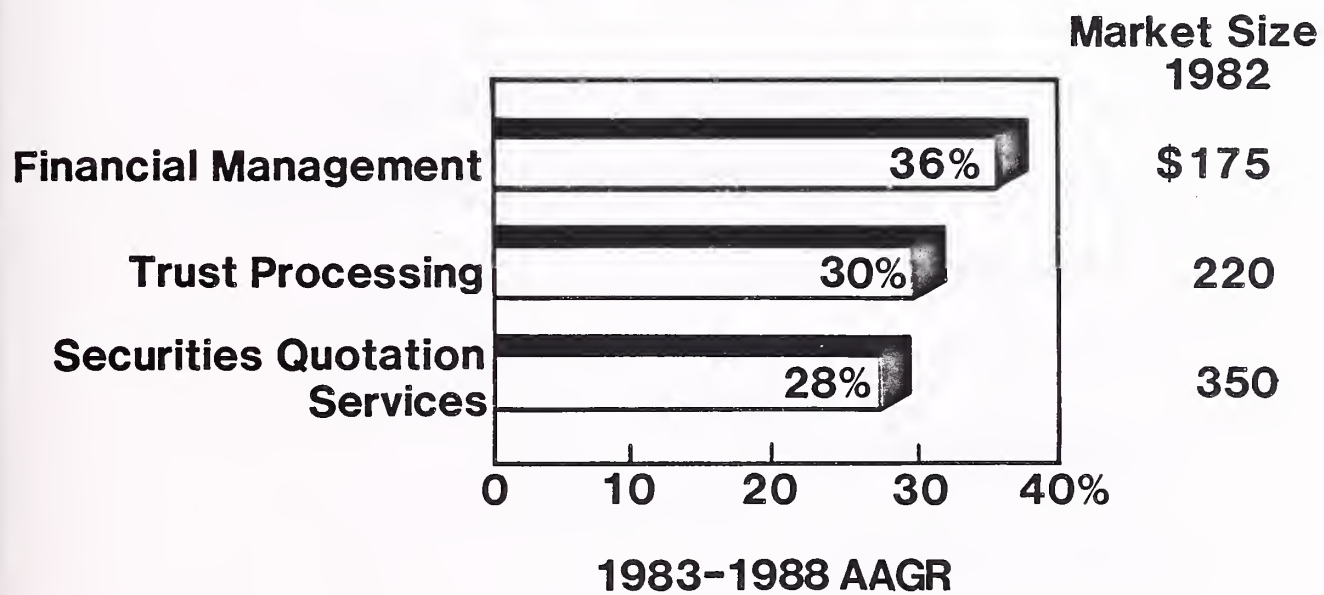
INPUT

HIGH GROWTH SEGMENTS



INPUT

HIGH GROWTH SEGMENTS



INPUT

RECOMMENDATIONS

- **Evaluate High Potential Application Areas**
 - **Integrated Trust/Retail/Wholesale Banking**
 - **Brokerage Services**
 - **Automated Cash Management Decisions**
 - **Planning Models**
 - **Home Banking**

INPUT

Banking and Finance

RECOMMENDATIONS

- **Upgrade Existing Products With:**
 - **DBMS**
 - **Fourth-generation Languages**
 - **Voice Response**

INPUT

Banking and Finance

RECOMMENDATIONS

- **Place Strategic Emphasis On:**
 - **Application Integration**
 - **PC, Turnkey-based Services**
 - **Client Involvement in Product Design**

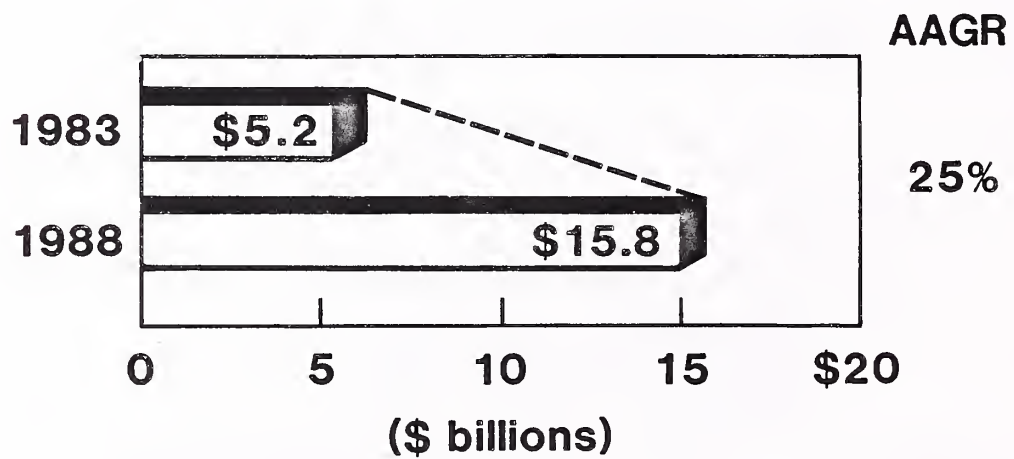
INPUT

DISCRETE MANUFACTURING



INPUT

DISCRETE MANUFACTURING



INPUT

Discrete Manufacturing

KEY MANUFACTURING ISSUES

- **Processes Becoming More Complex**
- **Increasing Domestic, Foreign Competition**
- **Excessive**
 - **Plant Capacity**
 - **Factory Downtime**
 - **New Product Launch Duration**

INPUT

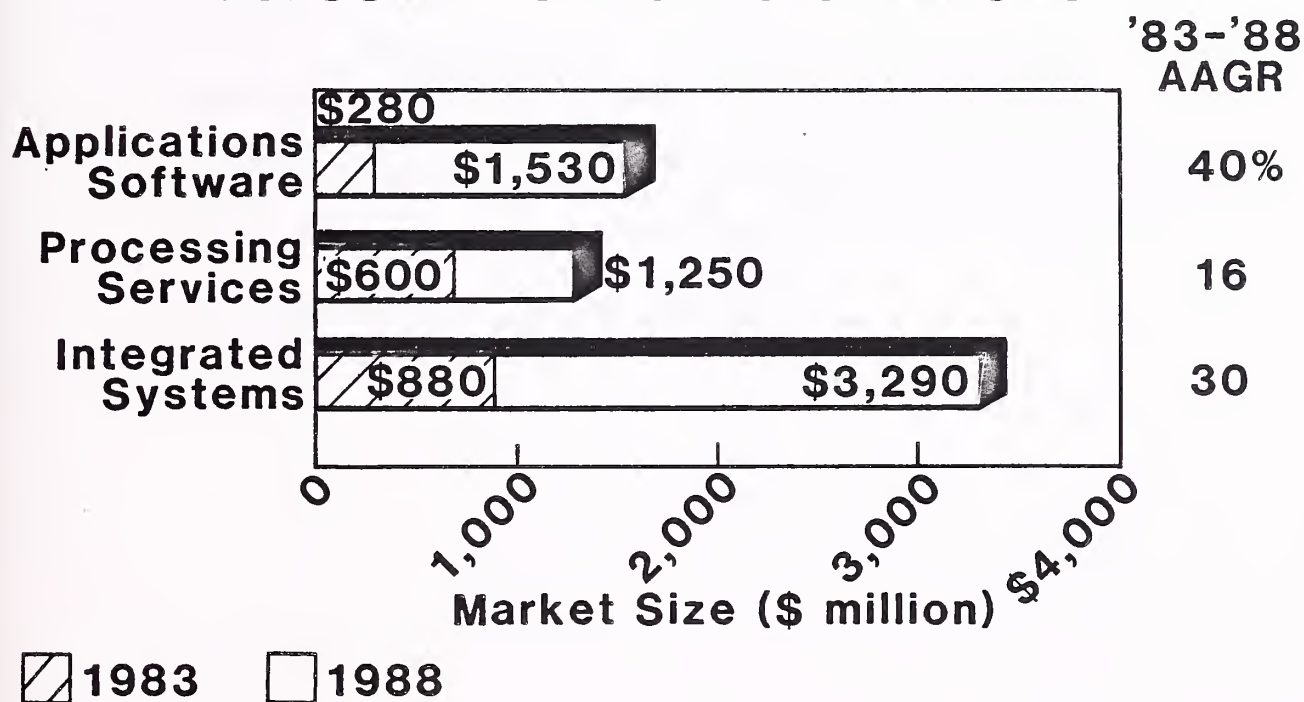
Discrete Manufacturing

TRENDS

- **CAD/CAM Changing Rapidly**
 - **Design (Not Drafting) Preference**
 - **Integrated Approach Wanted**
- **Robotics Gaining Momentum**
- **Machine Vision Systems Emerging**

INPUT

DISCRETE MANUFACTURING INDUSTRY SPECIFIC SERVICES



INPUT

Discrete Manufacturing

COMPETITIVE ACTIVITY

- **Hardware Vendors Seeking Software**
- **Some Financial Hiccups**
- **IBM - Computervision Agreement**

INPUT

Discrete Manufacturing

RECOMMENDATIONS

- **Target**
 - **Improved MRP Systems**
 - **Network Services Linking Suppliers, Distributors**
 - **CAD/CAM Integration**
 - **Robotic Applications Simulation**

INPUT

Discrete Manufacturing

RECOMMENDATIONS

- **Emphasize Software**
- **Expand Professional Services**
- **Narrow Market Focus**

INPUT

ENGINEERING AND SCIENTIFIC

INPUT

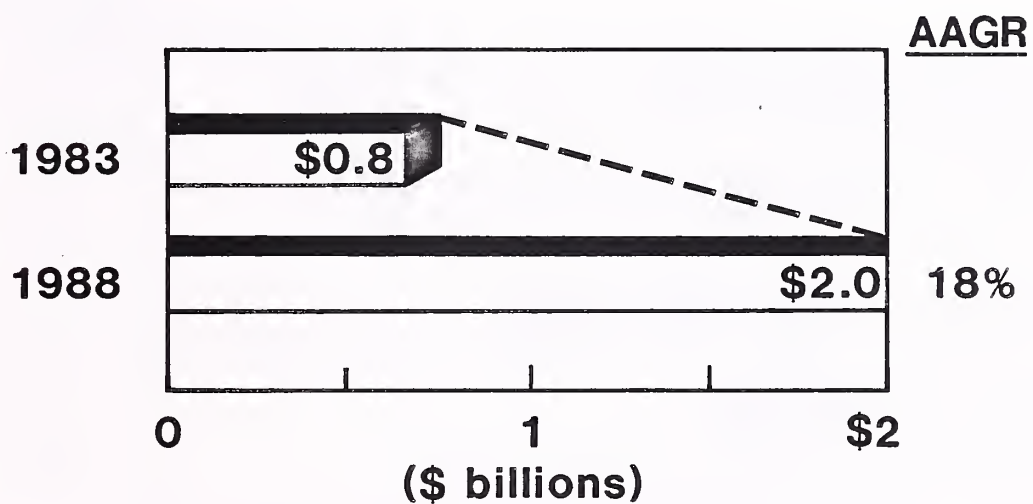
Engineering and Scientific PROFILE

- **Strong Economic Recovery**
- **Pent-up Demand**
- **Faster Design and Analysis Cycles**
- **More Engineering Audits**
- **More “Validated” Software**
- **Engineering Workstations
Up 35% Annually**

INPUT

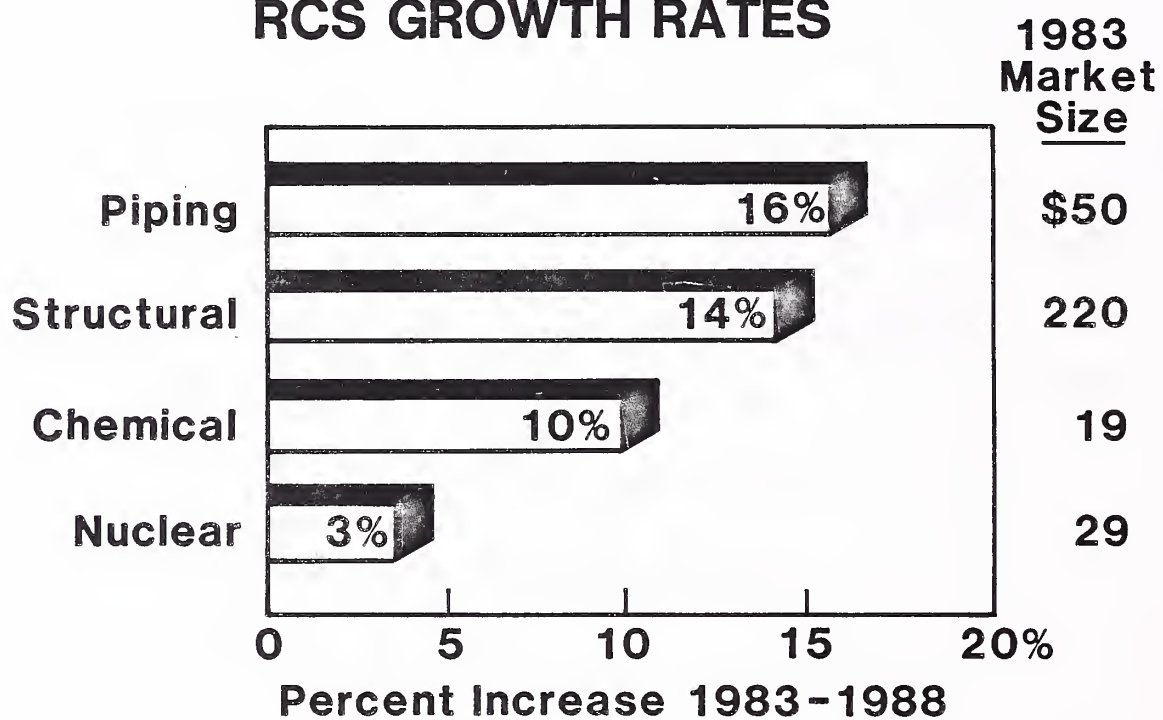
Engineering and Scientific

TOTAL MARKET 1983 - 1988



INPUT

RCS GROWTH RATES



INPUT

APPLICATIONS GOING IN-HOUSE

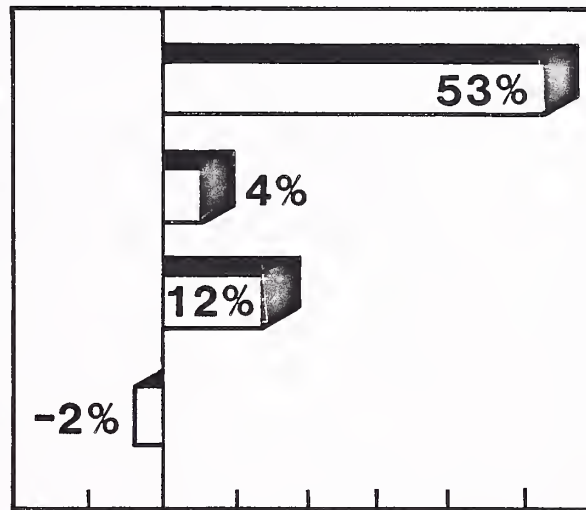
Computing Mode

Personal Computers

Minicomputers

I.S. Data Centers

RCS



-10% 0 20 40 60%
Engineering/Scientific Spending
Growth in Past Year

INPUT

CUSTOMER NEEDS ARE CHANGING

- **Customers Still Want:**
 - **Support**
 - **Good Price/Performance**
 - **Engineering/Scientific Software**

INPUT

CUSTOMER NEEDS ARE CHANGING

- **But No Longer Value:**
 - **Supercomputers**
 - **RCS Business Relationships**

INPUT

Engineering and Scientific

RECOMMENDATIONS

- **New Looks are Required**
 - **Offer Integrated Systems of Engineering Workstations Tied to Networks**
 - **Offer Engineering Data Bases for Cost and Design**

INPUT

Engineering and Scientific

RECOMMENDATIONS

- **Maximize Support and Minimize Costs**
 - **Centralize Applications Expertise**
 - **Offer Regional Training**
 - **Deemphasize Local Support**

INPUT

Engineering and Scientific
RECOMMENDATIONS

- **Distribute Hardware**
 - **Branch Office Mainframes**
 - **User Site Hardware**

INPUT

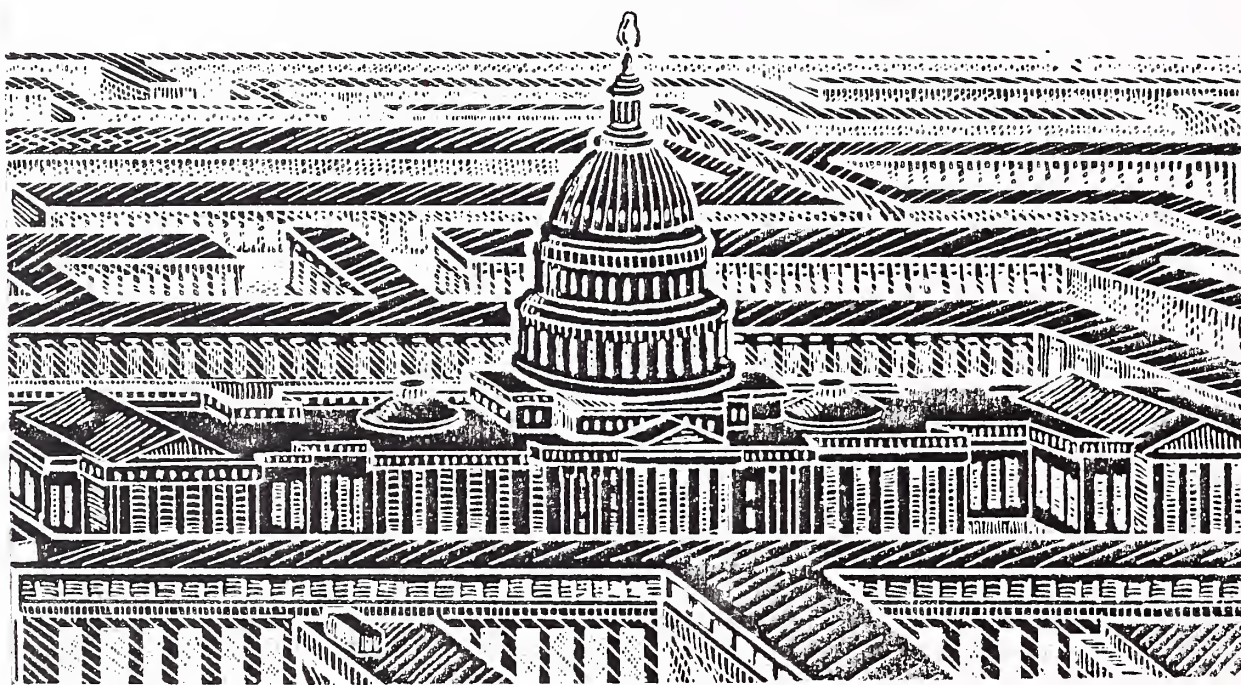
Engineering and Scientific

RECOMMENDATIONS

- **Broaden Computing Mode Support**
 - **Integrate Small Computers**
 - **Maximize Proprietary Software**
 - **Offer Integrated Systems**
 - **Support User Site Software**

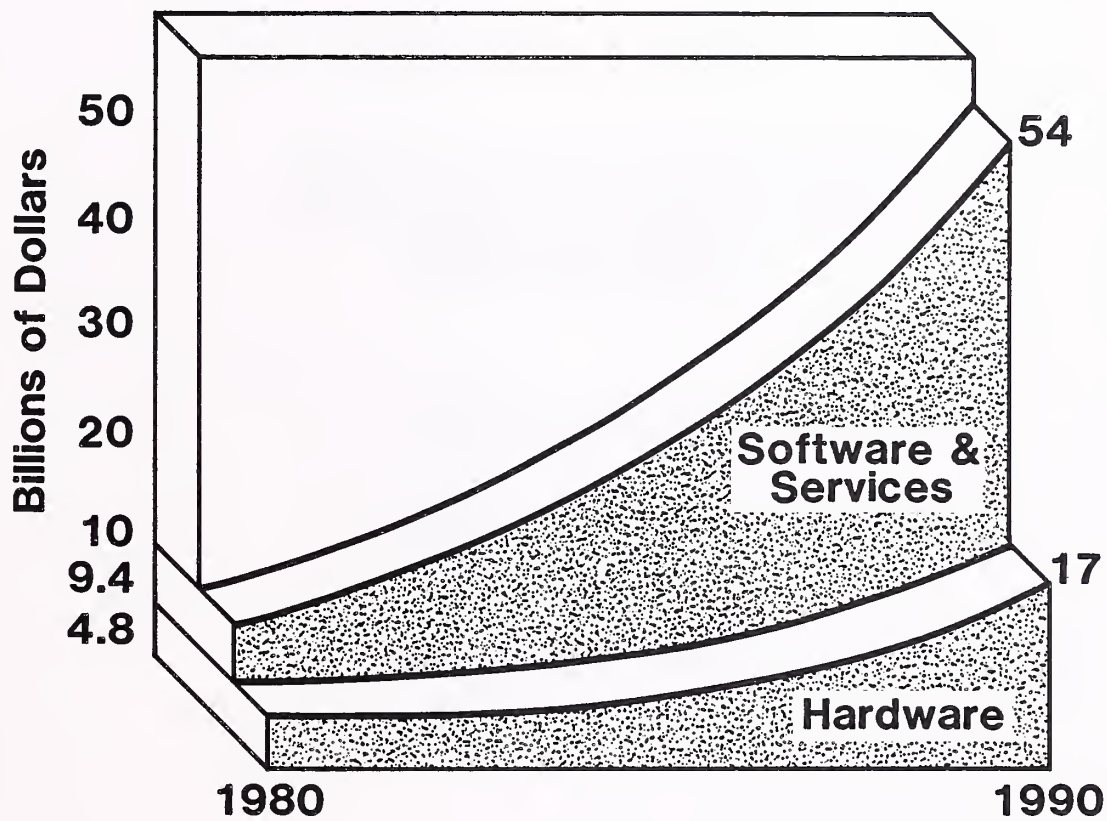
INPUT

FEDERAL GOVERNMENT



INPUT

FEDERAL GOVERNMENT COMPUTER EXPENDITURES*



*Excludes Classified Systems

INPUT

EMBEDDED COMPUTER RESOURCES

- **Exempt from Brooks Act**
- **25-fold Inventory Increase
(1980 to 2000)**
- **Support SW Paces Applications**

INPUT

EMBEDDED COMPUTER RESOURCES

- **Inadequacies:**
 - **Standardization**
 - **Technology Base**
 - **Transferability**
 - **Management Discipline**
- **ECR Modelling on Commercial ADPE**

INPUT

WHERE ARE THE PROGRAMMERS?

- **33% Annual Turnover**
- **40% Shortfall in 1990**
- **ECR SW Logistics Demand**
- **Productivity Aids**
- **Retraining Needs**
- **Commercial Market Impact**

INPUT

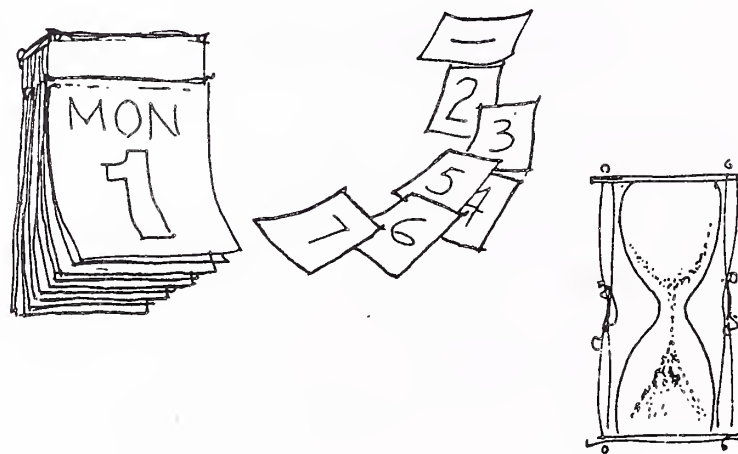
Federal Government

CONCLUSIONS

- **Soaring Federal Market**
- **PC-driven Management Tools**
- **Software Engineering Disciplines**
- **Embedded Computer “Bow Wave”**
- **Skilled Labor Demand Impact**

INPUT

INSURANCE



INPUT

PROPERTY/CASUALTY TRENDS

- **Unfavorable Business Conditions**
- **- Overcapacity, Increased Competition**
 - Underwriting Losses**
- **Information Services Needs**
 - Better Agent Support**
 - Better Underwriting Data**

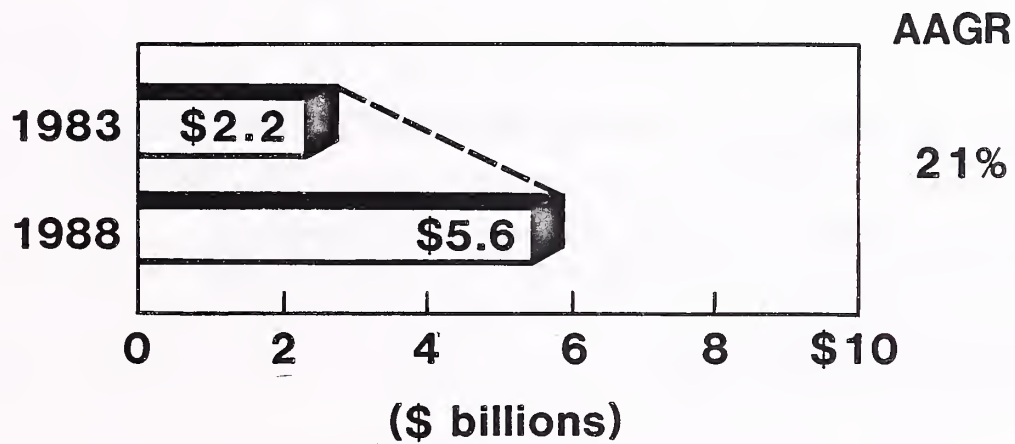
INPUT

LIFE/HEALTH TRENDS

- **Changing Product Mix**
- **Increased Self-insurance**
- **Non-insurance Competition**
- **Information Services Needs**
 - **Move Flexible Support Systems**
 - **Better Agent Support**

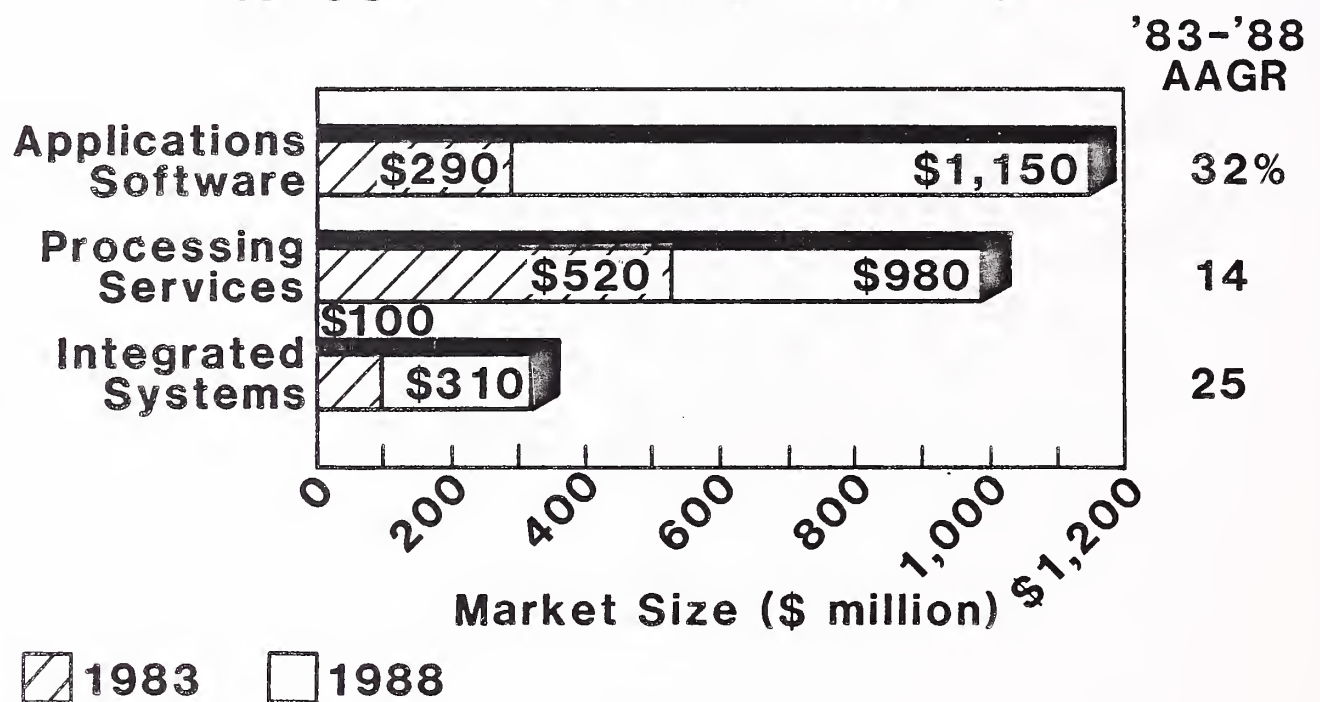
INPUT

INSURANCE



INPUT

INSURANCE INDUSTRY SPECIFIC SERVICES



INPUT

Insurance

RECOMMENDATIONS

- **Explore Opportunities Such As:**
 - **IVANS Tie-in Service**
 - **Commercial Lines Software**
 - **Third-party Benefit Administrators**
- **Keep Insurance Industry Expertise Visible**

INPUT

Insurance

COMPETITIVE ACTIVITIES

- **ISA Redirection**
- **PMS = Major P&C Software Vendor**
- **Multiple PC-based Services**
- **PC Companies Offering Agency Automation**
- **IVANS in Test Mode**

INPUT

MEDICAL



INPUT

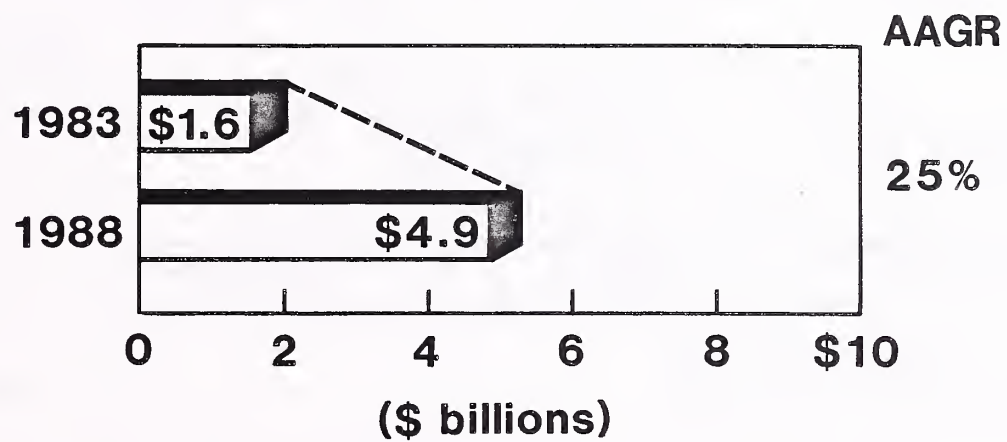
Medical

CHANGING STRUCTURES

- **Intense Competition**
- **New Cost-sensitive Environment**
 - **Hospitals —→ Ambulatory Care**
 - **Larger Group Practices**
- **HMO, Chain, Walk-in Growth**
- **Large Corporation Management**

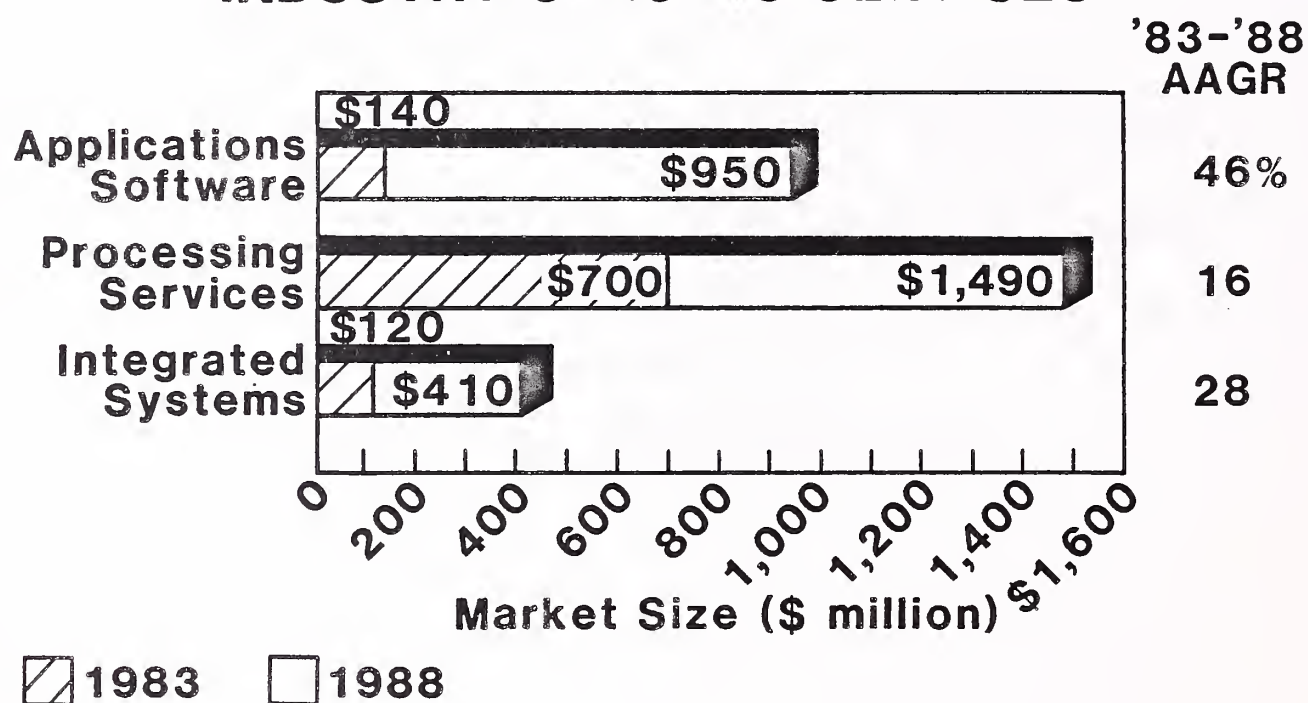
INPUT

MEDICAL



INPUT

MEDICAL INDUSTRY SPECIFIC SERVICES



INPUT

SYSTEMS IMPLICATIONS

- **Diagnosis-related Group (DRG) Reporting**
- **More Hospital Robotics**
- **More Expert Systems**

INPUT

Medical

COMPETITIVE ACTIVITY

- **More Joint Marketing**
- **More Insurance, CPA Vendors**
- **Vendor Diversification
to Physician Market**
- **IBM More Aggressive**

INPUT

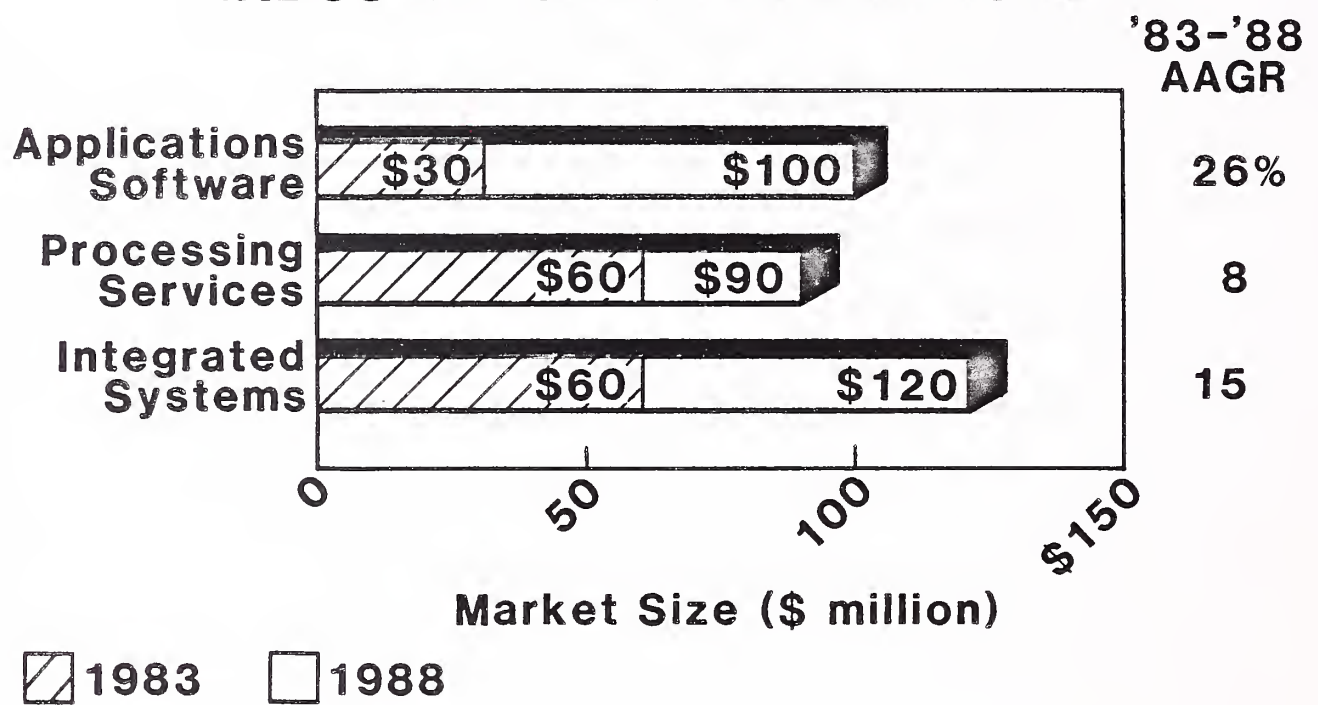
Medical

RECOMMENDATIONS

- **Explore Emerging Application Opportunities**
 - **Cost Measurement Systems**
 - **Patient Data Bases**
- **Target Chains**
- **Emphasize Service/Software Support**

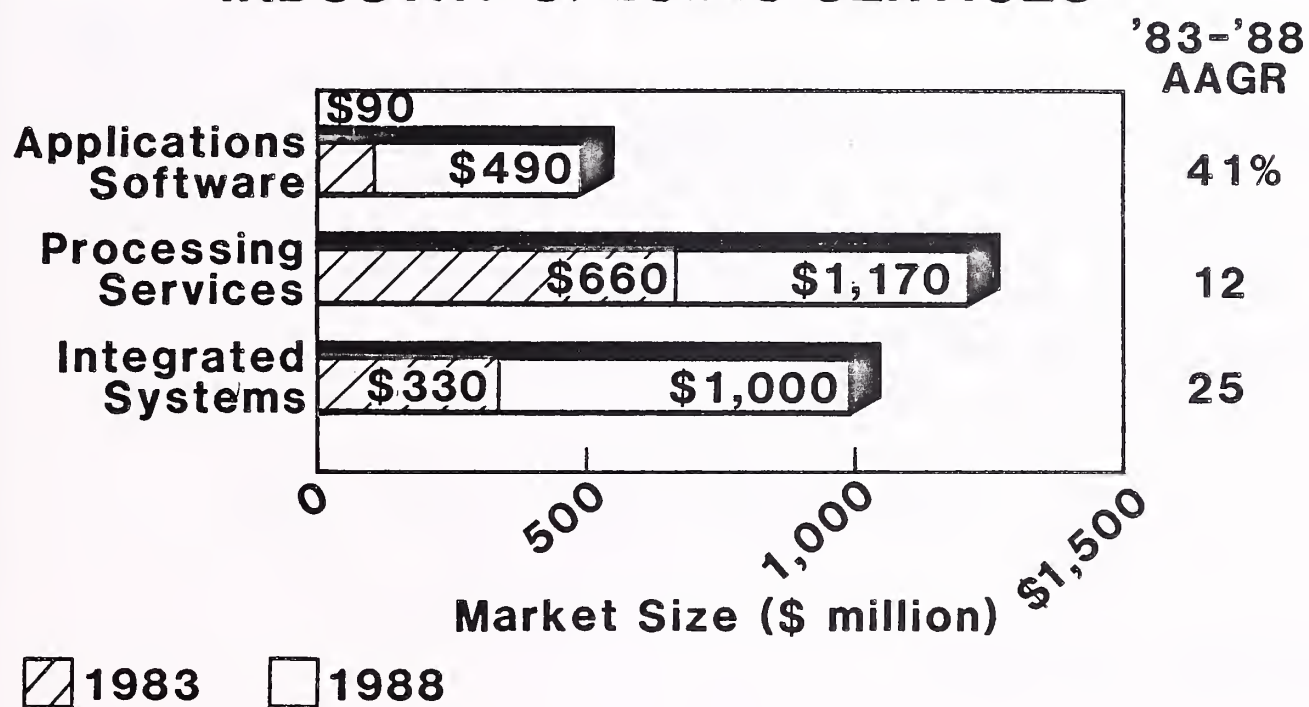
INPUT

EDUCATION INDUSTRY SPECIFIC SERVICES



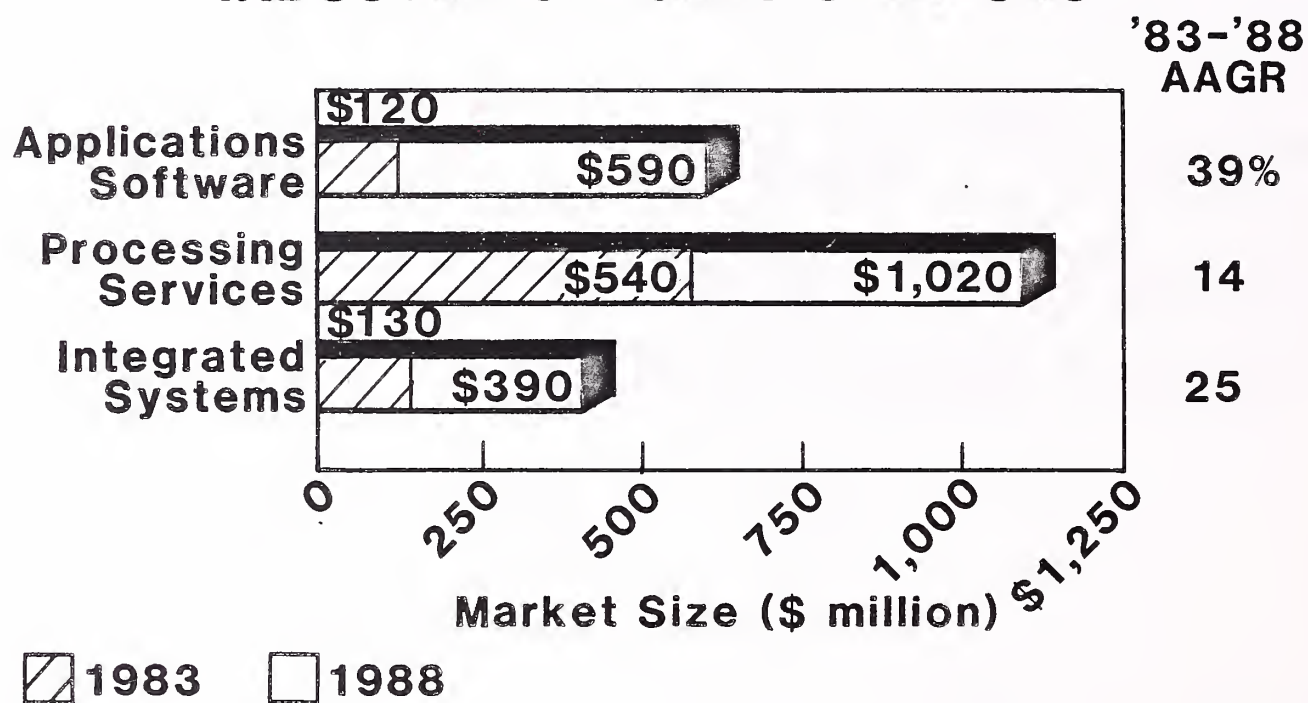
INPUT

PROCESS MANUFACTURING INDUSTRY SPECIFIC SERVICES



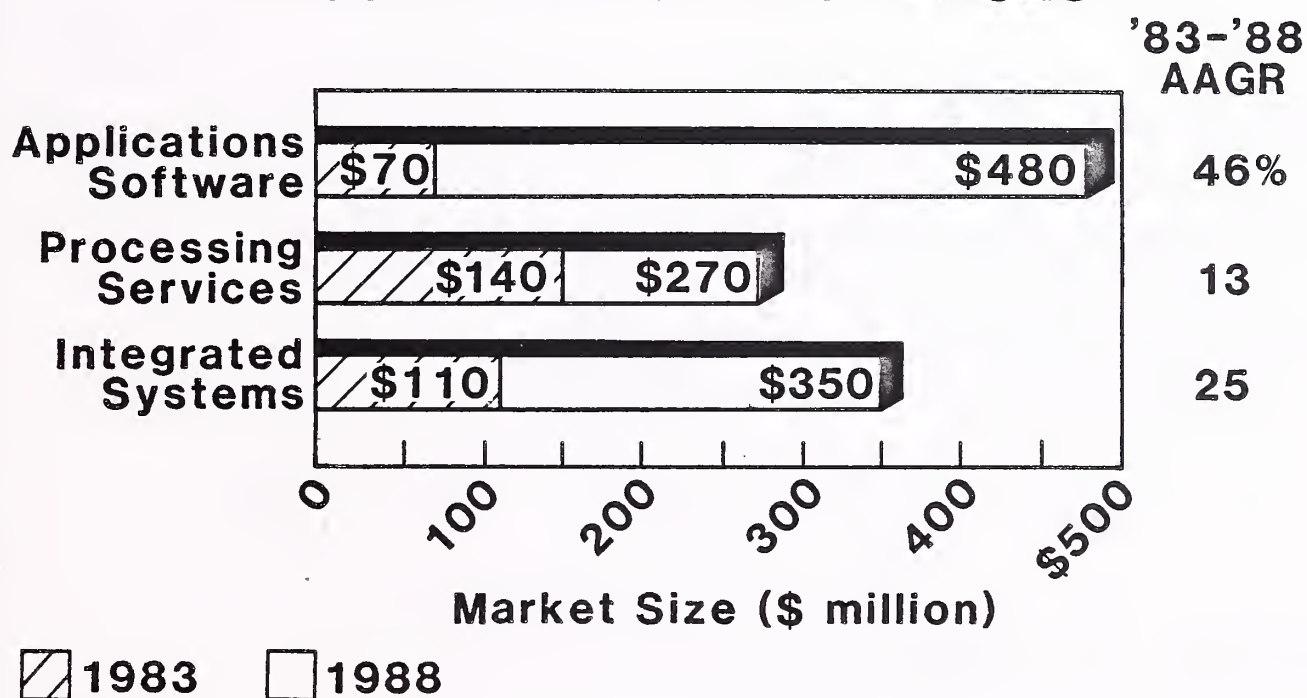
INPUT

RETAIL DISTRIBUTION INDUSTRY SPECIFIC SERVICES



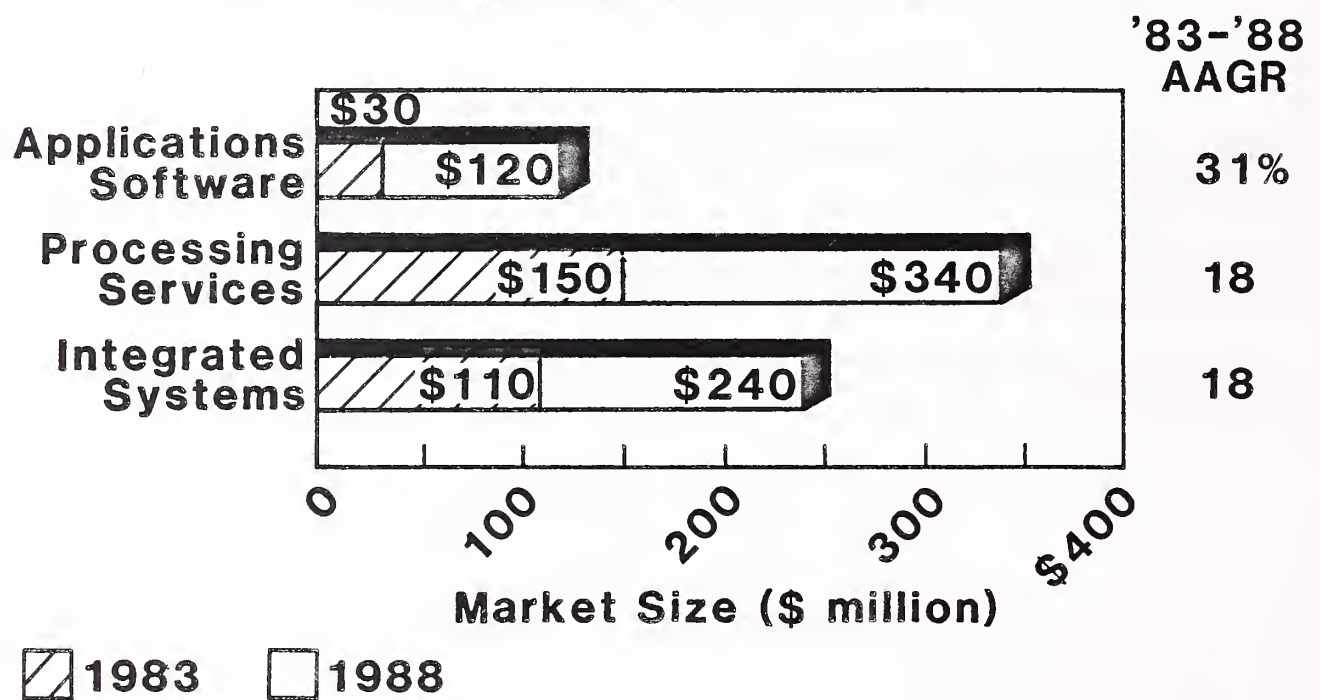
INPUT

TRANSPORTATION INDUSTRY SPECIFIC SERVICES



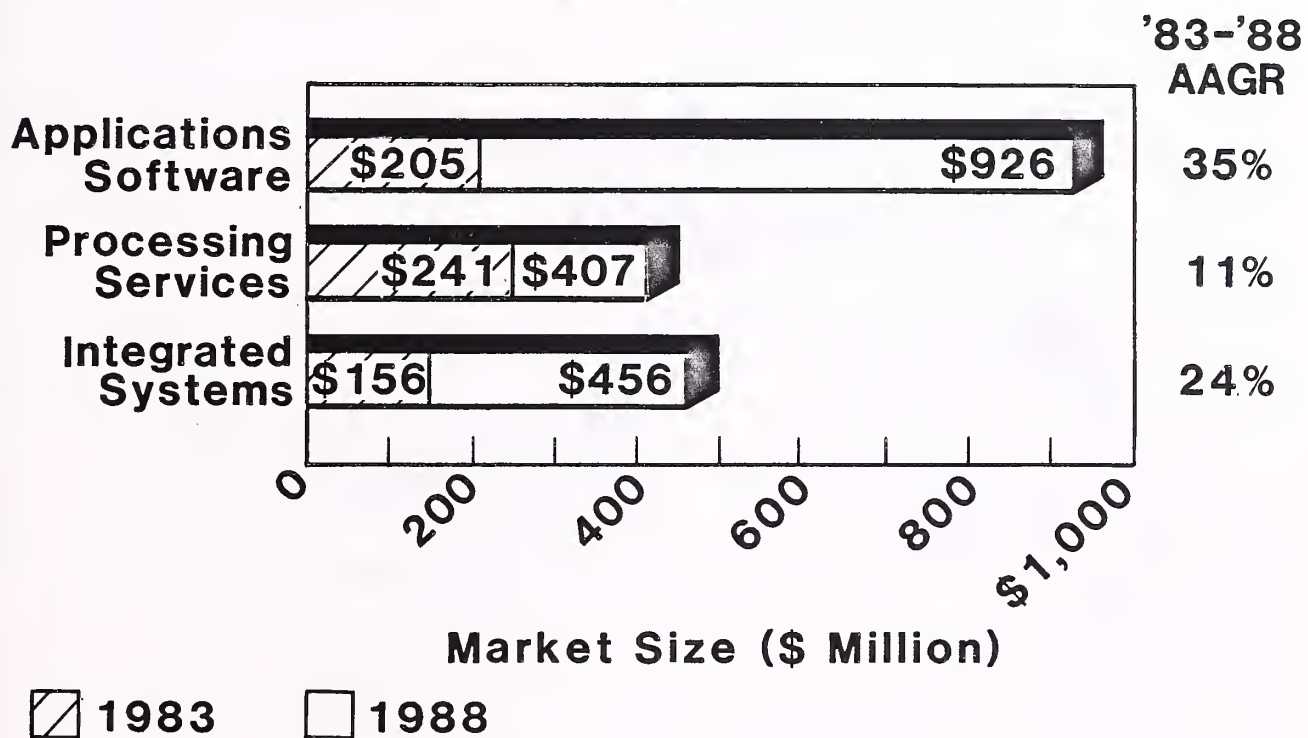
INPUT

UTILITIES INDUSTRY SPECIFIC SERVICES



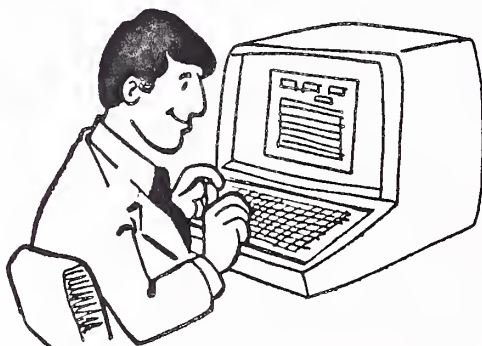
INPUT

WHOLESALE INDUSTRY SPECIFIC SERVICES



INPUT

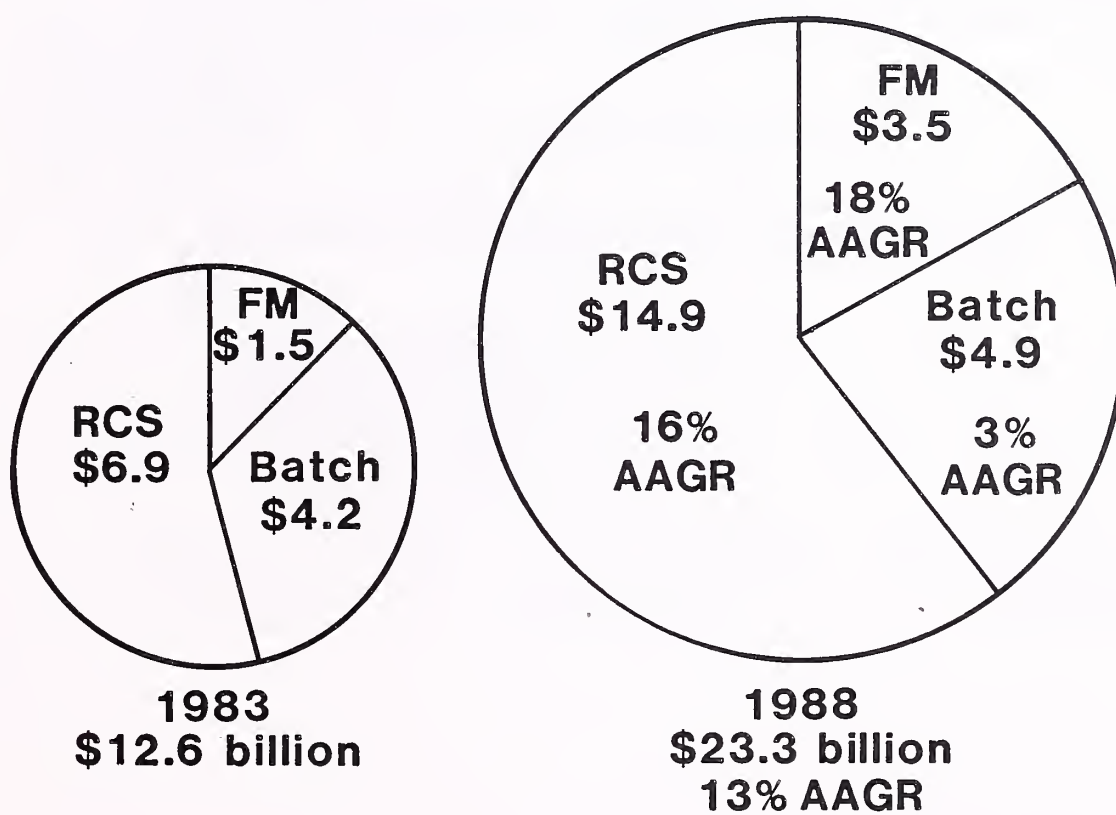
PROCESSING SERVICES OUTLOOK



- Services Mix
- PC Impact
and Response
- Recommendations

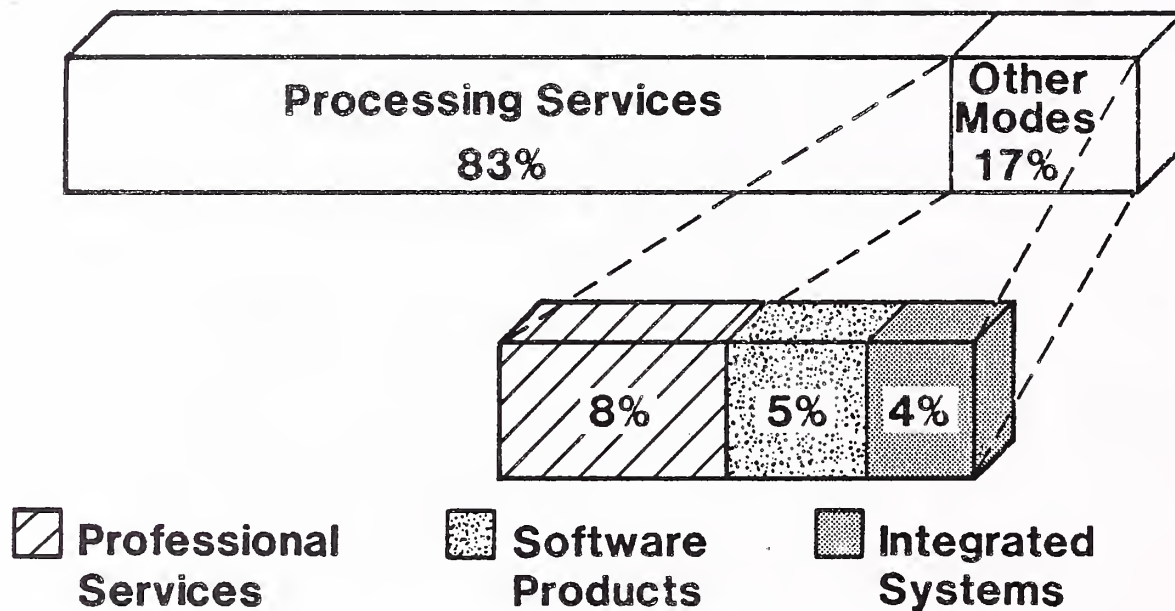
INPUT

PROCESSING SERVICES GROWTH



INPUT

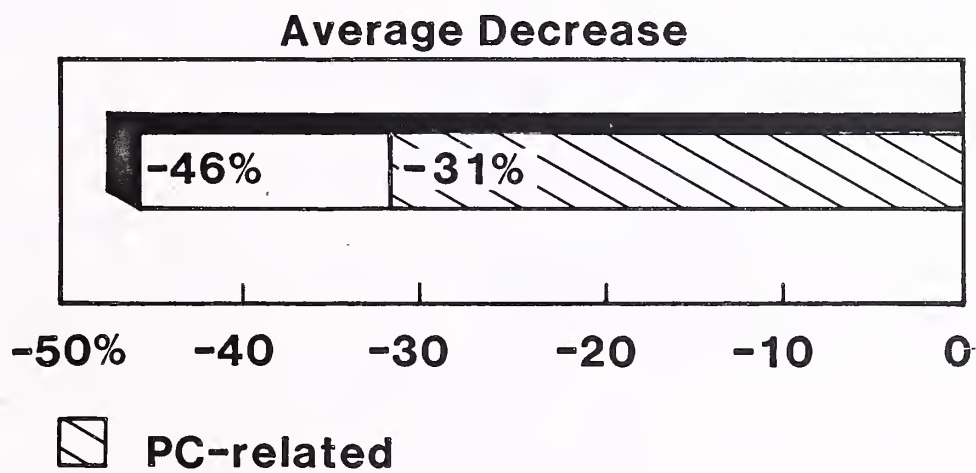
EXPANSION TO MULTIPLE DELIVERY MODES



INPUT

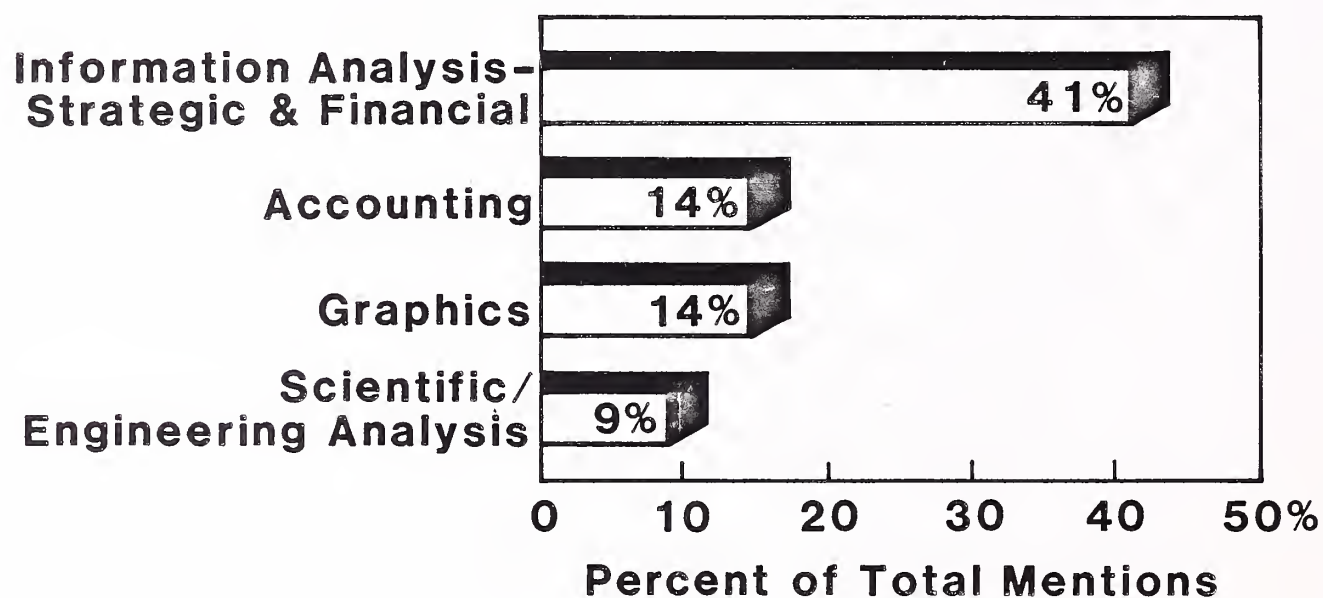
USE OF RCS

- 48% of Respondents Reported Decline in RCS Use



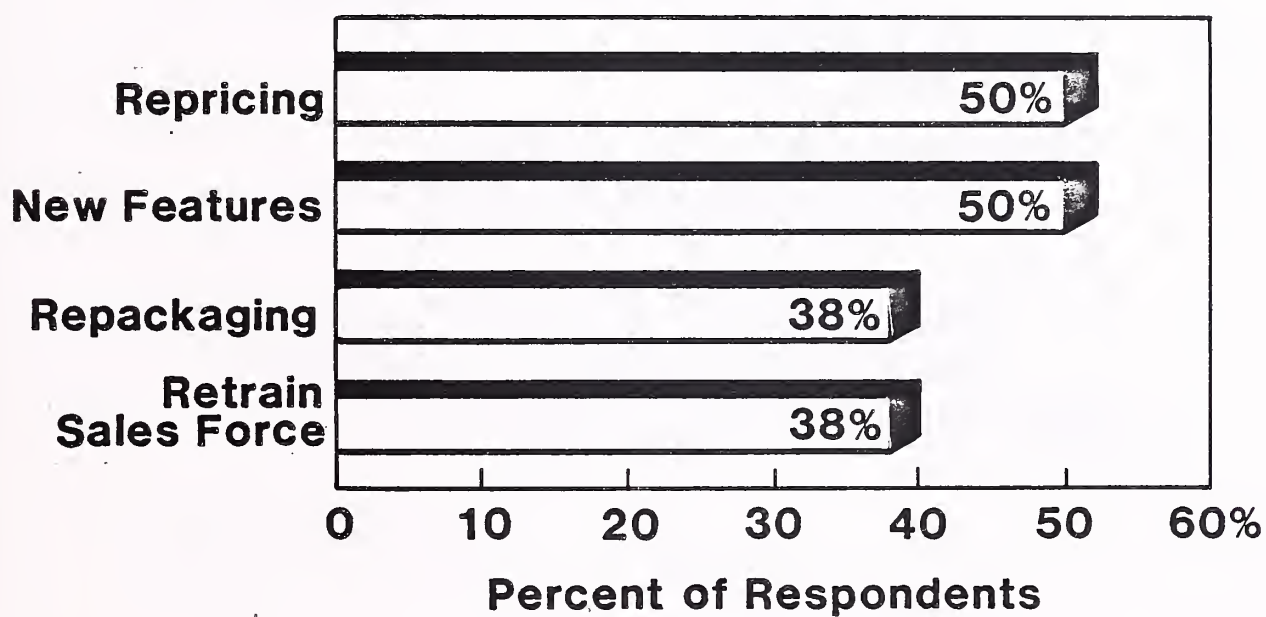
INPUT

RCS APPLICATIONS DISPLACED BY PCs



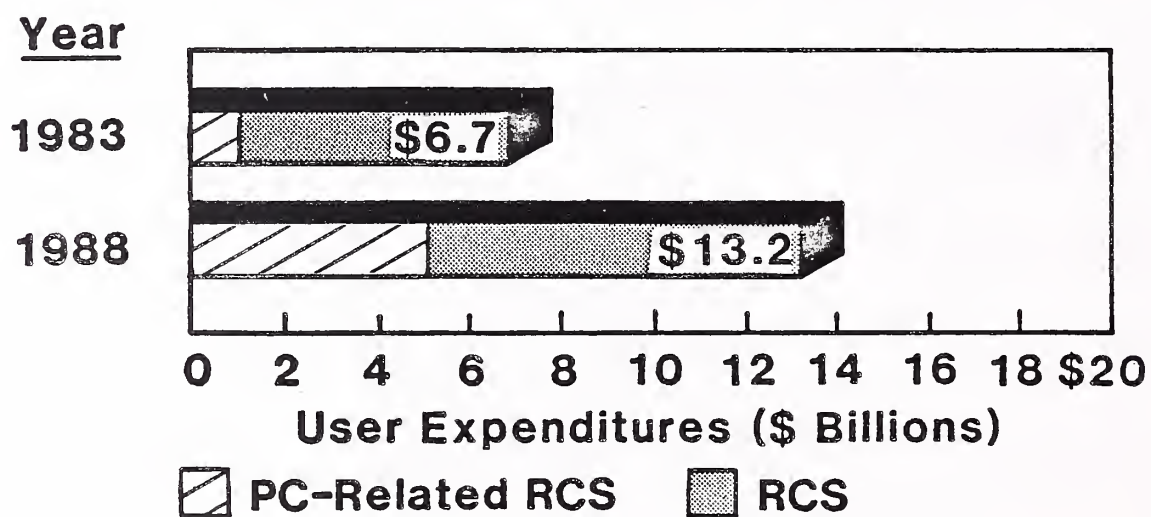
INPUT

RCS DEFENSIVE STRATEGIES



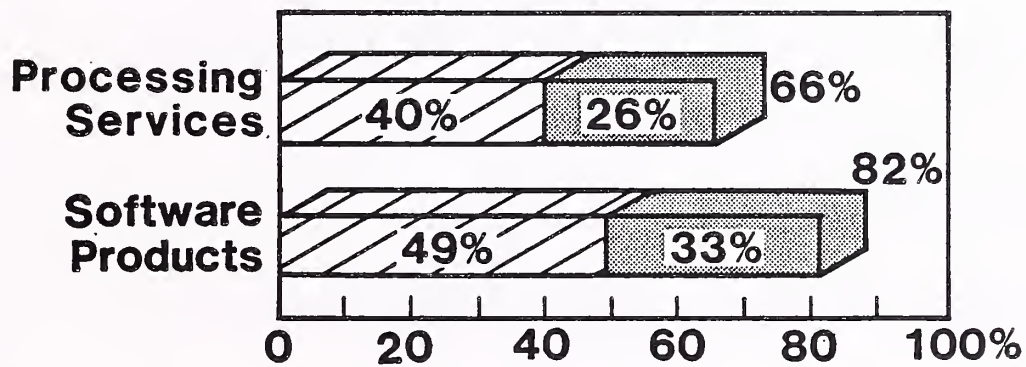
INPUT

PC-RELATED RCS TO BE 33% OF U.S. REVENUES BY 1988



INPUT

VENDOR INVOLVEMENT WITH PERSONAL COMPUTERS



146 Respondents

 Currently Offer

 Plan to Offer

INPUT

RCS GROWTH STRATEGIES UNLIKELY TO BE DUPLICATED BY PC TECHNOLOGY

- **Strong Customer and Application Knowledge**
- **Communications (Value-added and LAN)**
- **Large Data Base Applications**
- **Large Transaction-oriented Applications**

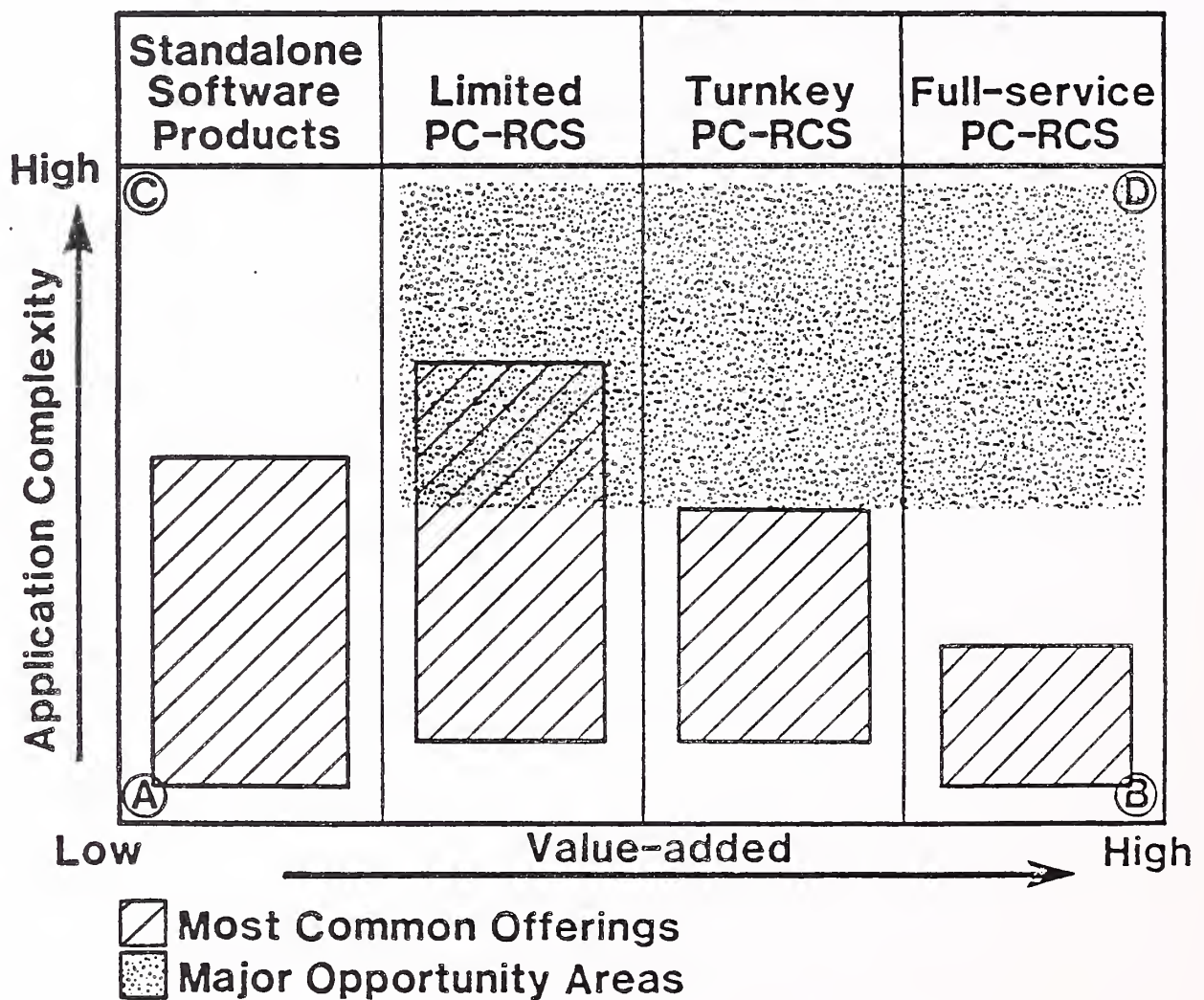
INPUT

RCS GROWTH STRATEGIES UNLIKELY TO BE DUPLICATED BY PC TECHNOLOGY

- **Full Range of Customer Support**
- **Local Sales/Support Offices**
- **RCS Vendor Accountability**

INPUT

SCOPE OF PC-RCS OFFERINGS



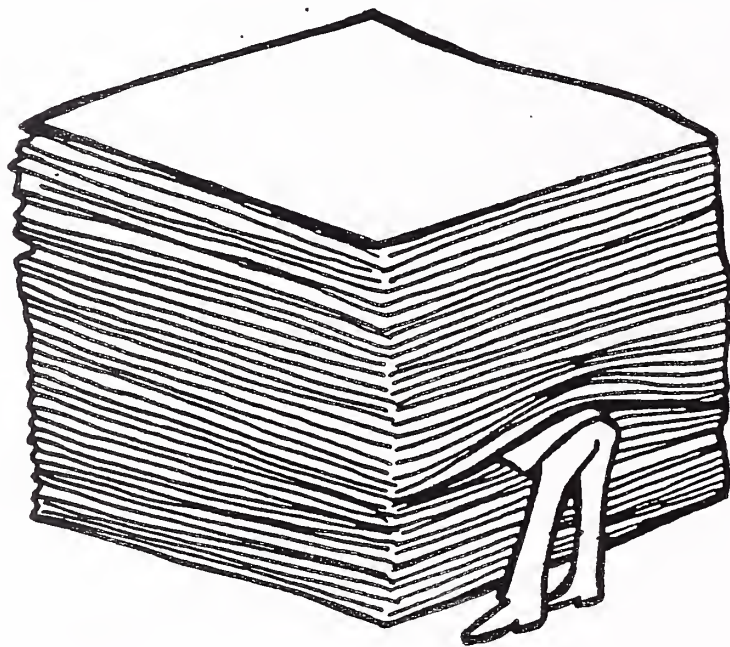
INPUT

PC-RCS IMPLEMENTATION CONSIDERATIONS

- **Stay in Mainstream With . . .**
 - **Hardware**
 - **Operating Systems**
- **Keep Design Open-ended**
- **Provide Good Ergonomics**

INPUT

ON-LINE DATA BASES



INPUT

DATA BASE SERVICES

- **More Cost-effective Storage, Processors, and Terminals**
- **More Outlets**
- **Better Network Management**
- **Better Information Handling Software**
- **But Higher Communications Costs**

INPUT

DATA BASE SERVICES DEMAND

- **Market Conditioning through Advertising**
- **Broader Base of Customers**
- **More Demand for Qualified Information**
- **Need for Interrelated Data**

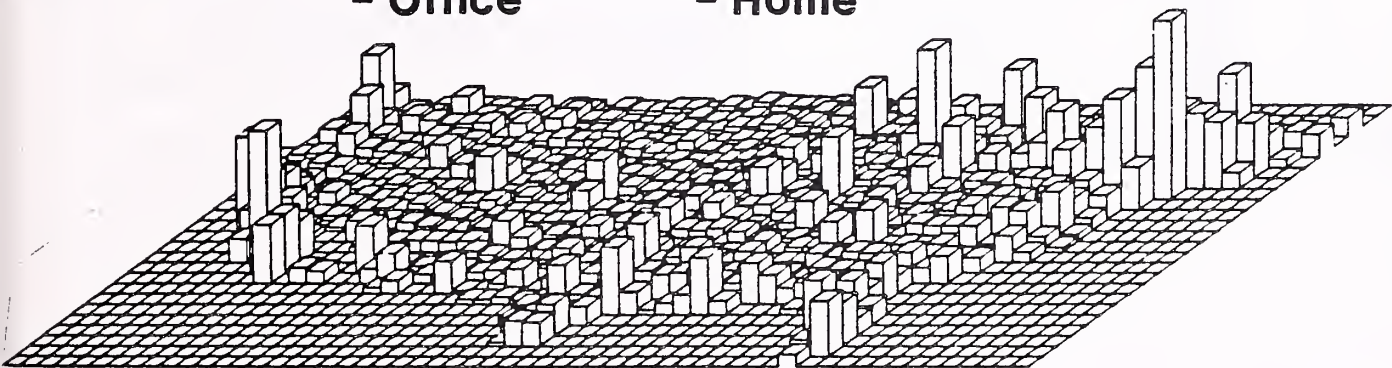
INPUT

DATA BASE SERVICES DRIVING FORCES

- Shift from Dedicated to PC Terminals
- PC Proliferation Creating Millions of Access Points

- Office

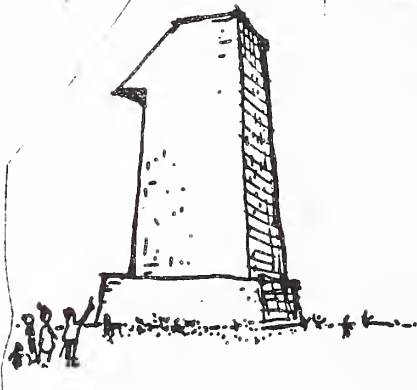
- Home



INPUT

DATA BASE VENDORS

- Dominant Vendors by Application



Economic

- DRI & IDC

Stock Quote

- Quotron

Credit

- Telecredit, TRW

Real Estate

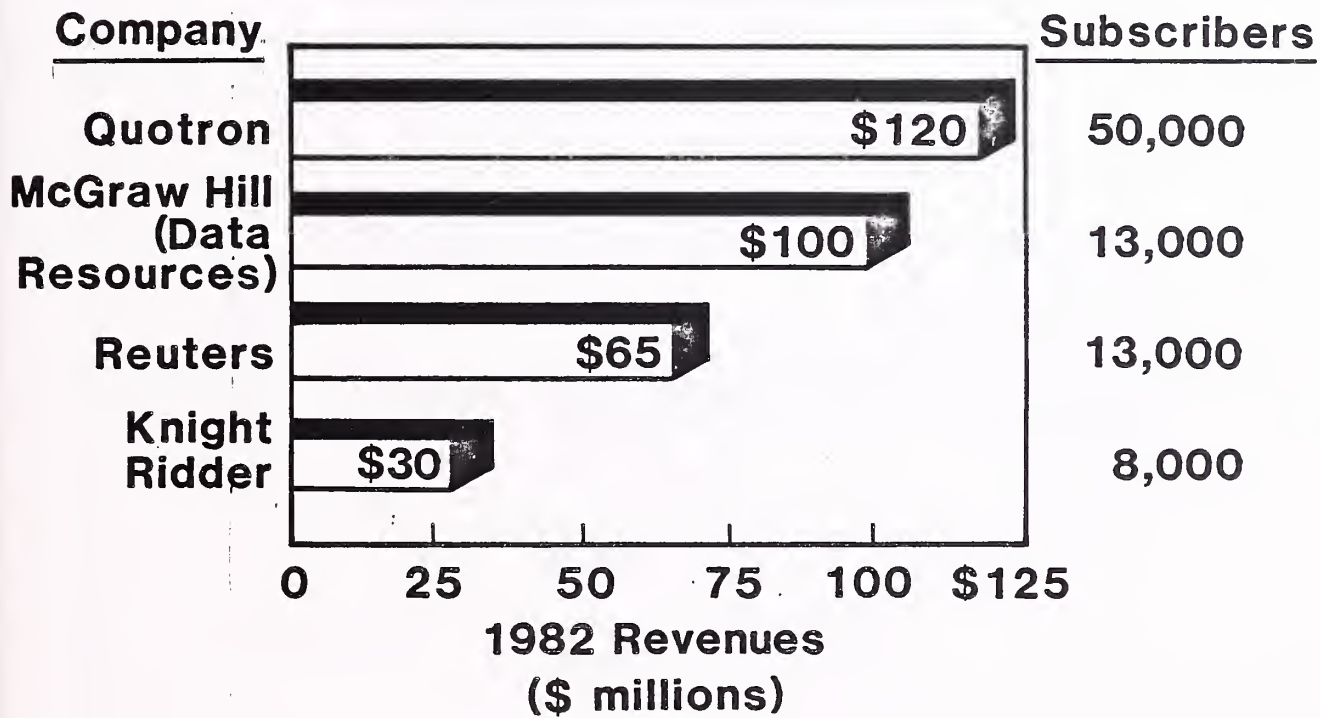
- PRC

Legal (Text)

- Mead Lexis

INPUT

ON-LINE DATA BASE VENDOR PERFORMANCE



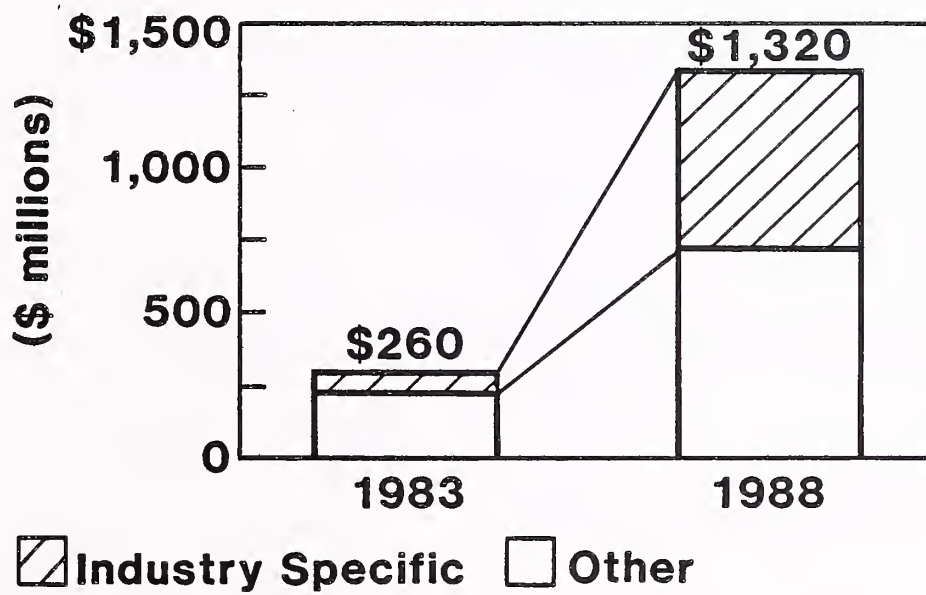
INPUT

DATA BASE-RELATED OPPORTUNITIES

- **Provide Distribution Channel For Publishers**
- **Target Home-based PCs**
- **Use Spin-off Data From Transaction Processing**
- **Improve Data Handling and Interface Software**

INPUT

VALUE-ADDED NETWORK SERVICES MARKETS



INPUT

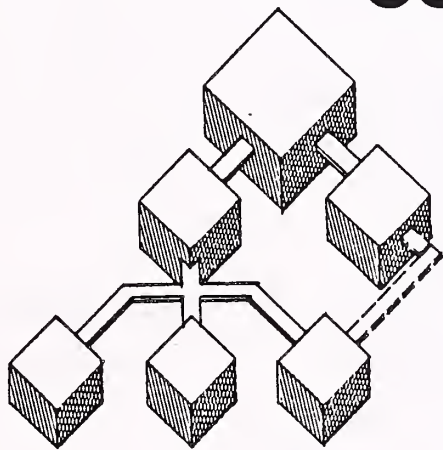
Processing Services

RECOMMENDATIONS

- **Focus on Selected Market Segments**
- **Expand Delivery Mode Alternatives**
 - **Software Products**
 - **Professional Services**
 - **Integrated Systems**
- **Increase PC-RCS Offerings**

INPUT

SOFTWARE PRODUCT OUTLOOK



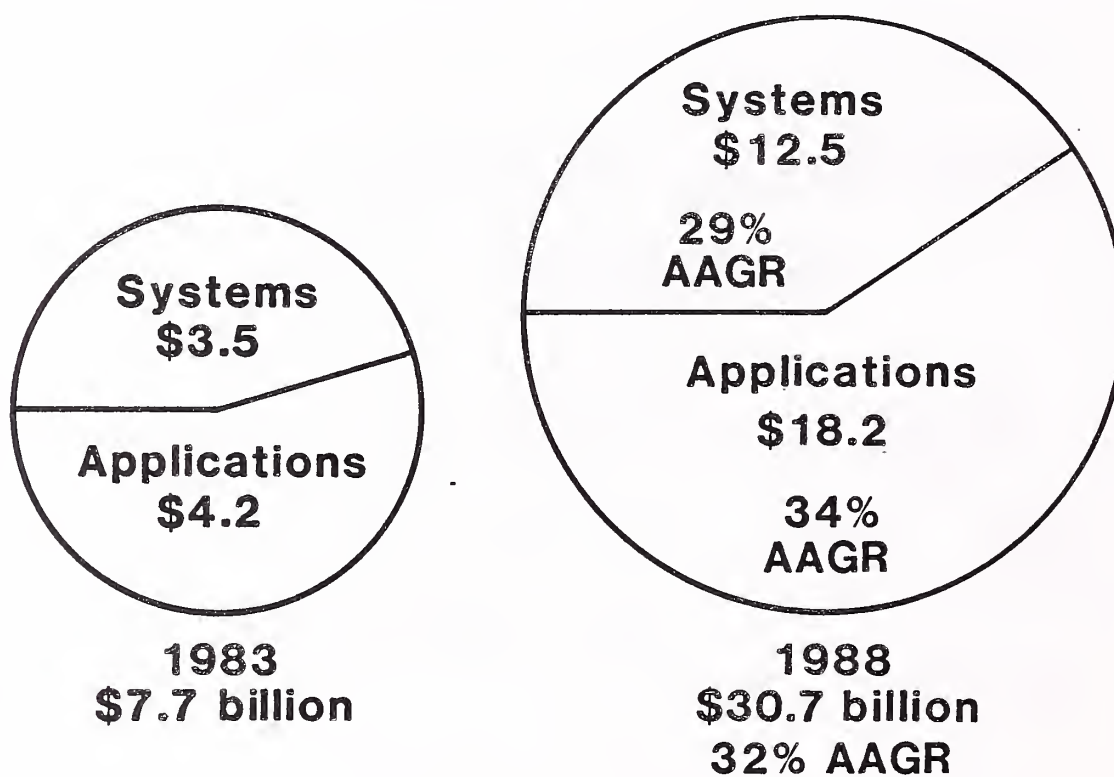
Profile

Trends

Recommendations

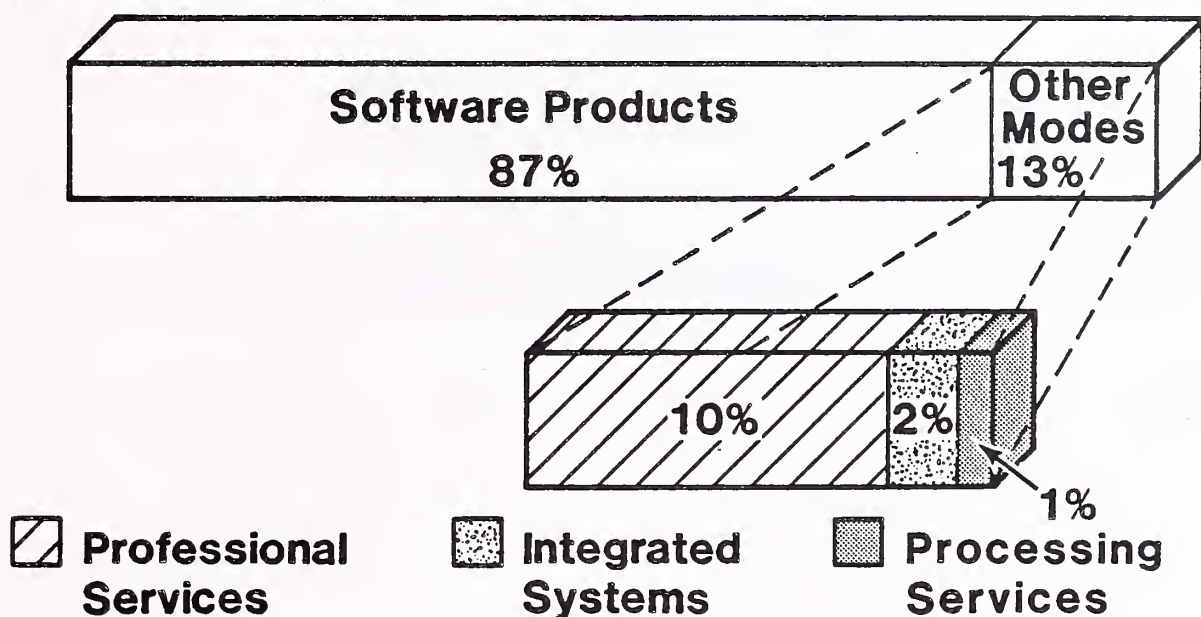
INPUT

SOFTWARE PRODUCTS GROWTH



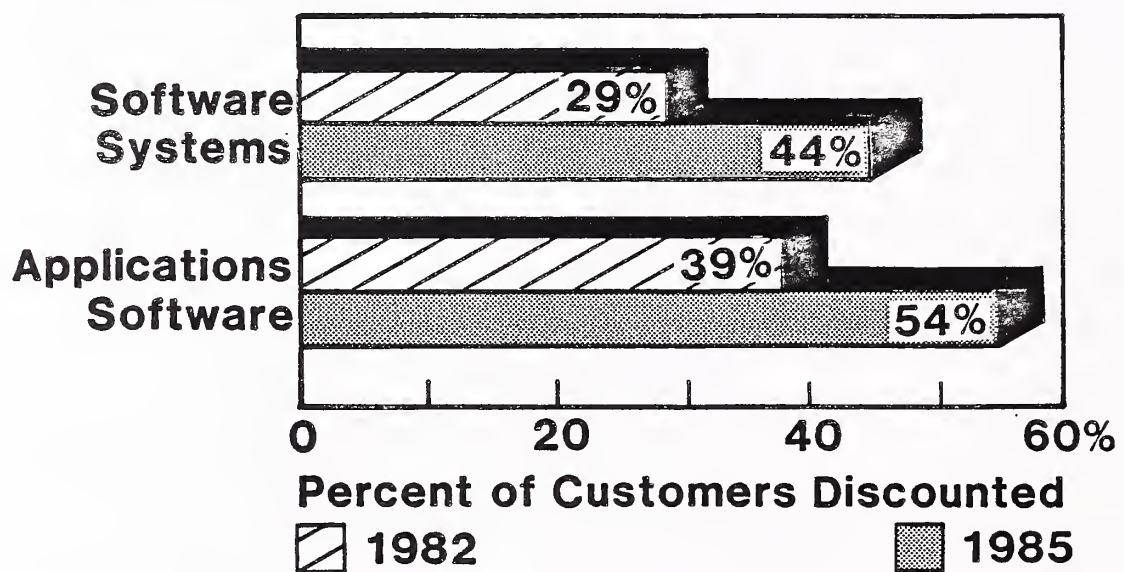
INPUT

DISTRIBUTION OF SOFTWARE PRODUCTS COMPANIES' REVENUE



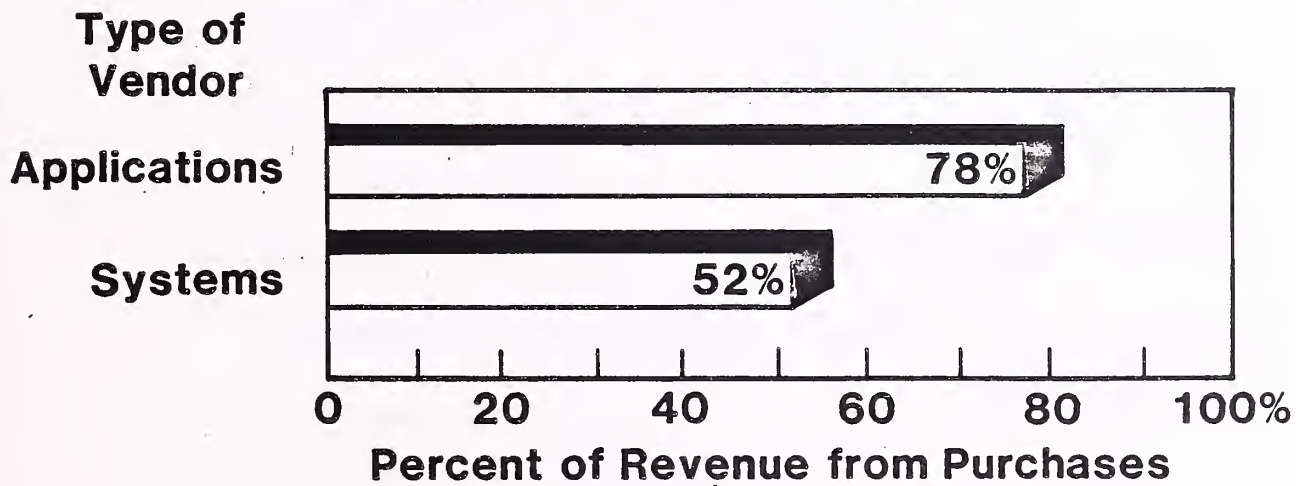
INPUT

DISCOUNTING TO INCREASE



INPUT

HIGH PURCHASES RATIO THREATENS STABILITY



INPUT

SOFTWARE PRODUCT TRENDS

- **82% of Vendors To Have PC Offerings**
- **More Joint Ventures**
- **New Entrants**
- **Increased Acquisitions by Large Companies**
- **Emergence of Software Product Holding Companies**

INPUT

SOFTWARE PRODUCT RECOMMENDATIONS

- **Use PCs to Pull Mainframe Sales**
- **Market Mainframe Versions of PC Successes**
- **Use Third Parties to Accelerate Market Penetration**
- **Increase Lease Bases to Stabilize Revenue Swings**

INPUT

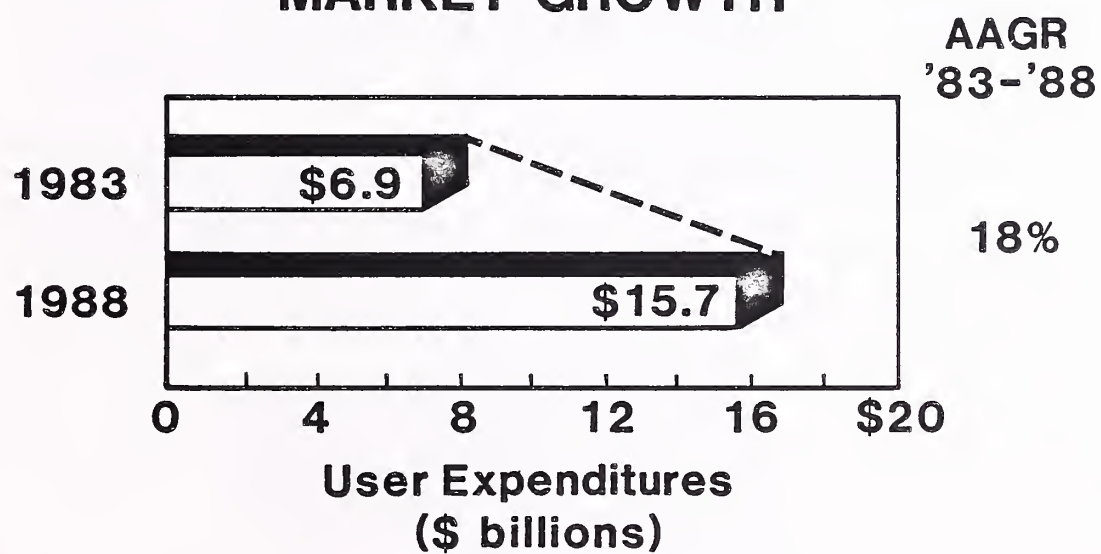
PROFESSIONAL SERVICES OUTLOOK



- Profile
- Trends
- Recommendations

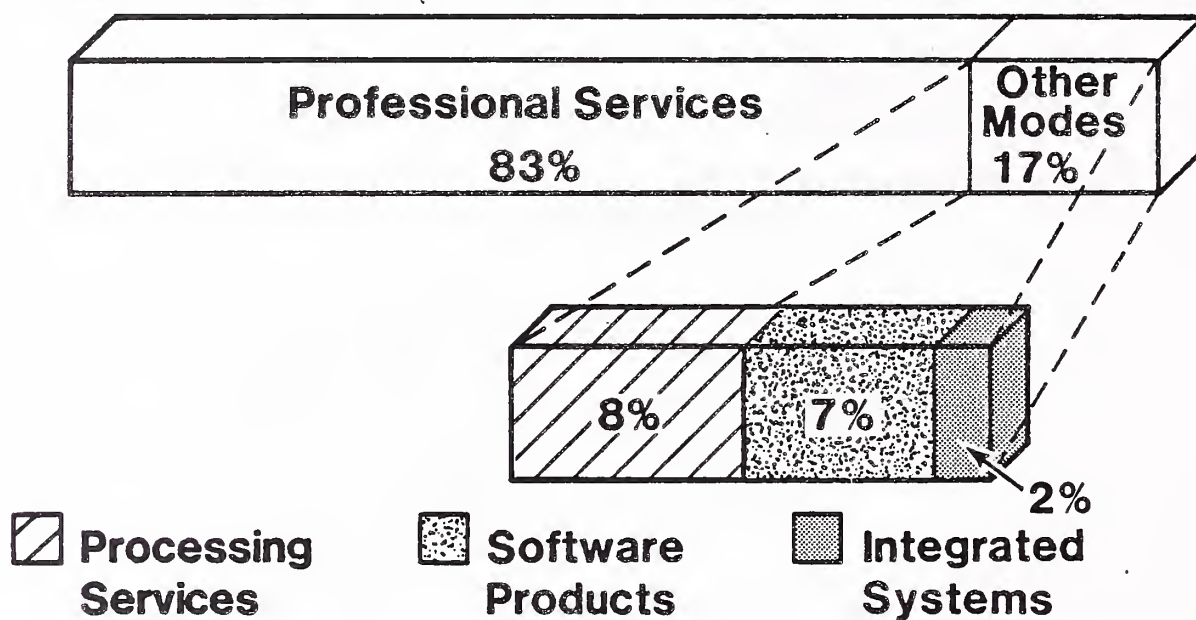
INPUT

PROFESSIONAL SERVICES MARKET GROWTH



INPUT

DISTRIBUTION OF PROFESSIONAL SERVICES COMPANIES' REVENUE



INPUT

Professional Services

TRENDS

- **Growth Variance by Geography**
- **Enhanced Activity by RCS Vendors**
- **More E&T Competition From Hardware Vendors**

INPUT

Professional Services

RECOMMENDATIONS

- **Establish Speciality Skills**
- **Expand Alternative Delivery Modes to Known Markets**
- **Seek Joint Marketing Relationships**

INPUT

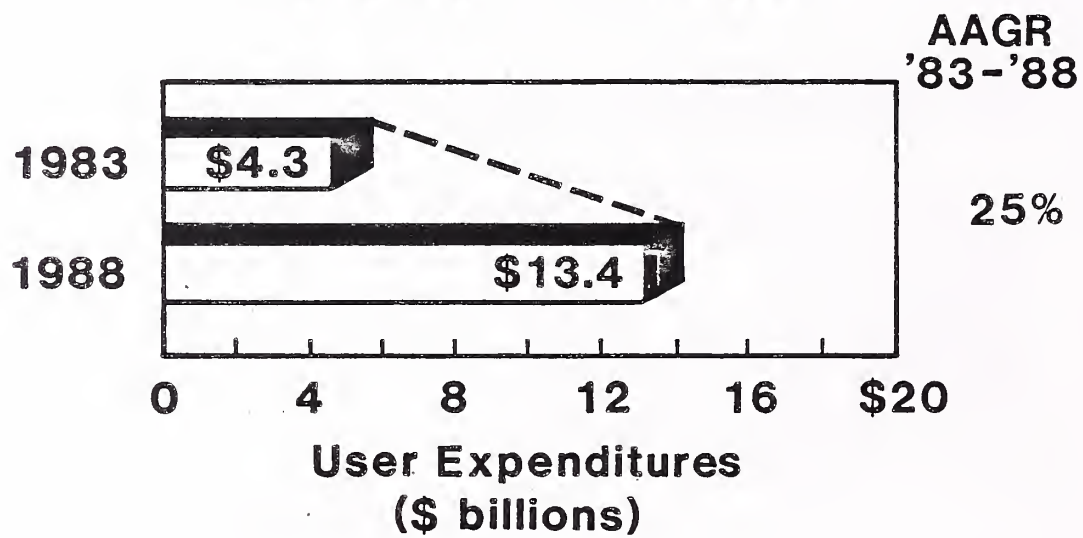
INTEGRATED SYSTEMS OUTLOOK



- Profile
- Trends
- Recommendations

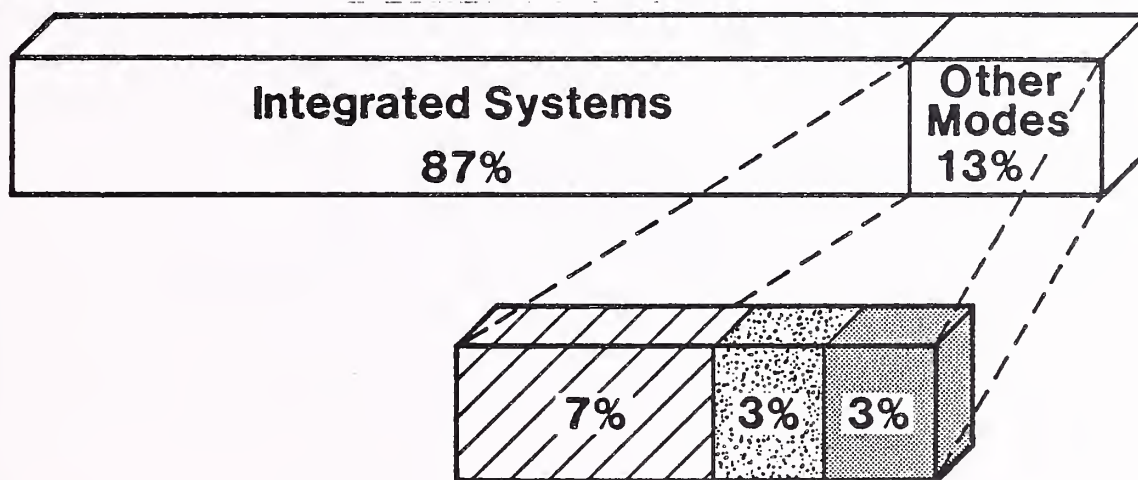
INPUT

INTEGRATED SYSTEMS MARKET GROWTH



INPUT

DISTRIBUTION OF INTEGRATED SYSTEMS COMPANIES' REVENUE



 **Processing Services.**

 **Professional Services**

 **Software Products**

INPUT

Integrated Systems

TRENDS

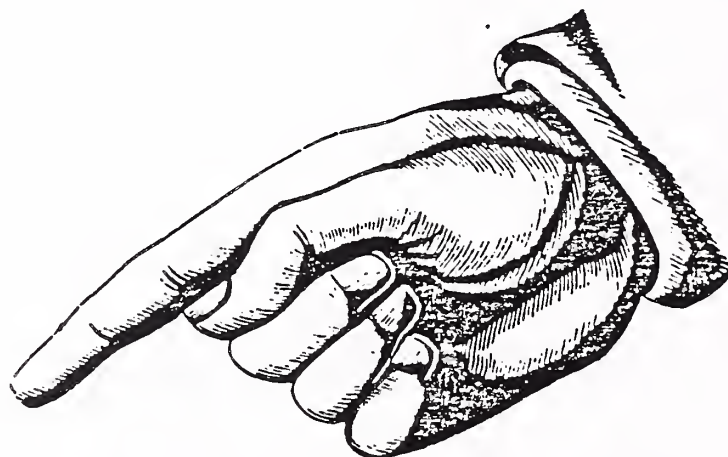
- **Expanding Service Offerings**
 - **Service/Software More Important than Price**
 - **Enhanced Account Control**
- **Competition From Nonturnkey Vendors**

INPUT

RECOMMENDATIONS

- **Offer Variations of Service**
 - **RCS Version**
 - **Rental Systems**
 - **Software Products**
- **Develop PC Tie-ins**
- **Expand Field Service Role**

INPUT



CONCLUSIONS AND RECOMMENDATIONS

INPUT

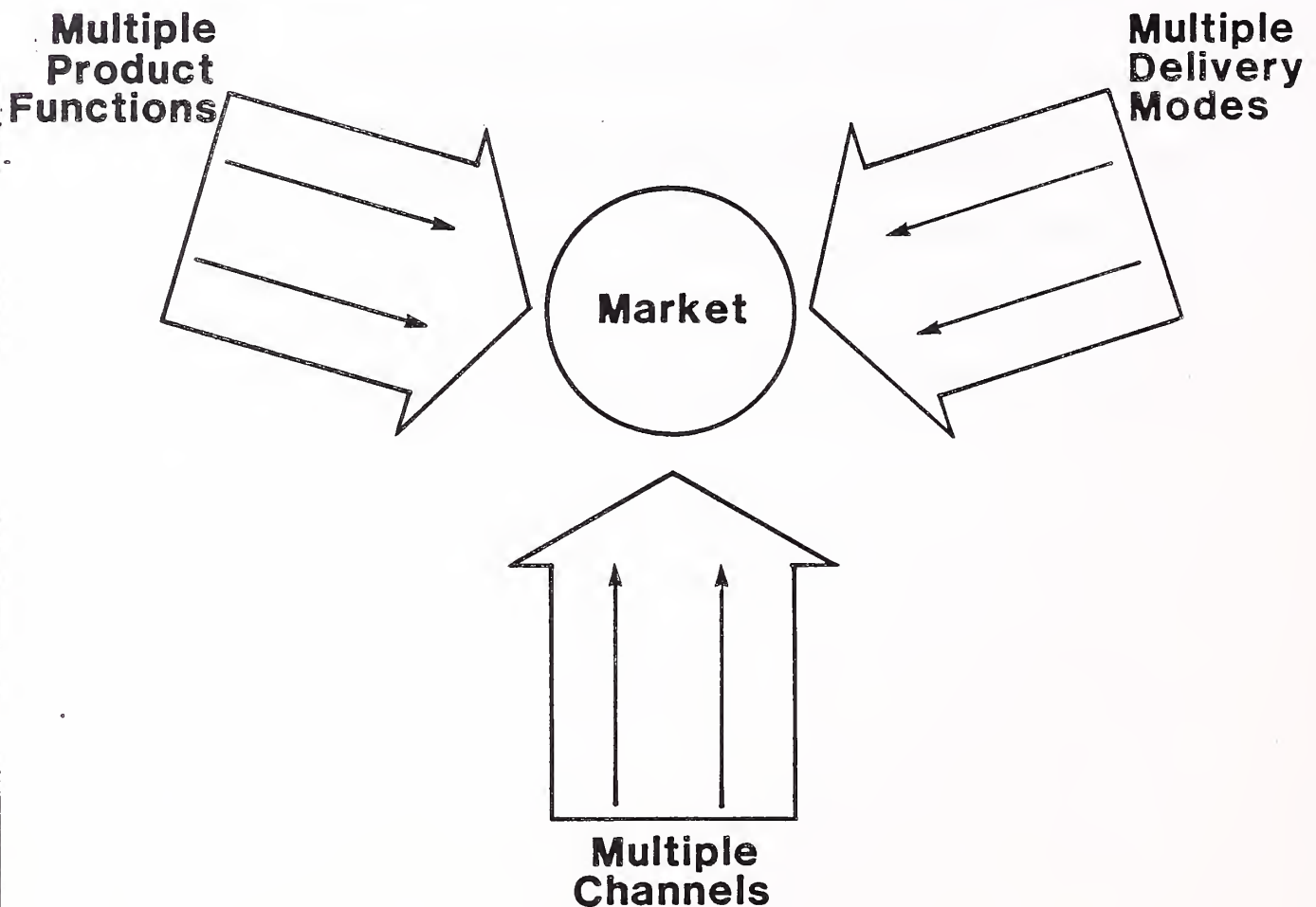
THE INDUSTRY TODAY

- **Demand Exploding**
- **Technology Creating More Options**
- **Users Want Best of Both Worlds**
 - **More Powerful Systems**
 - **Easier Use**
- **Competition Becoming Better Financed**

INPUT

Recommendations

USE INTEGRATED STRATEGIES TO LEVERAGE MARKET EXPERTISE



INPUT

Recommendations

OFFER MULTIPLE PRODUCT FUNCTIONS

- **Previously Separate Functions**
 - LISA
 - (LOTUS 1-2-3, Context MBA)
- **Link to Other Vendors' Systems**
 - VisiAnswer/Answer DB

INPUT

Recommendations

USE MULTIPLE DELIVERY MODES

- **Competitive Edge Is Market Knowledge**
- **Software Product Versions**
- **Complementary Data Base Services**

INPUT

Recommendations

USE MULTIPLE DISTRIBUTION CHANNELS

Examples:

Artificial

Intelligence, Inc. —————> IBM (INTELLECT)

VisiCorp

—————> Informatics, ADR

AGS Computers

**—————> Micro America
Distributing**

SEI

—————> Client Banks

INPUT

EXAMPLES OF MULTIPLE DELIVERY MODES

**RCS (Martin Marietta) —→ Systems Software
(Mathematica)**

RCS (ADP,CSC) —→ VAN (Autonet)

**Turnkey Systems —→ RCS (ASKNET)
(ASK)**

INPUT

SUMMARY

- **Provide Multiple Approaches to Selective Markets**
- **Leverage Partnership Opportunities**

INPUT

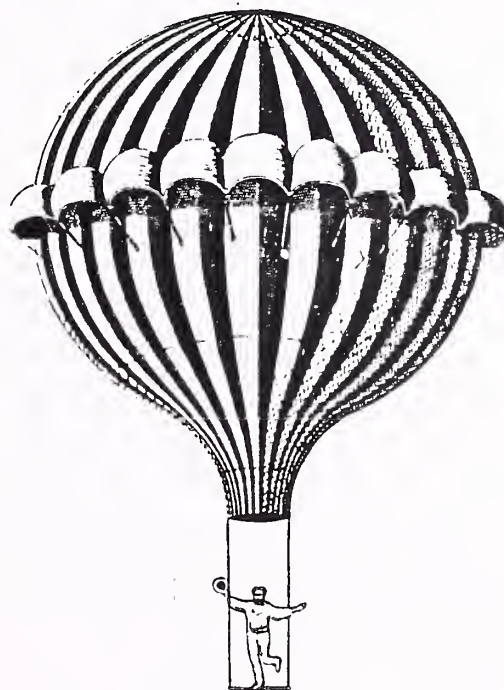
SUMMARY

- **Embrace End-user Computing**
- **Accelerate PC-oriented Services**
- **Design for Three Levels**
- **Focus on Ergonomics**

INPUT

1983 - 1988

**UP,
UP,
AND AWAY!**



INPUT

